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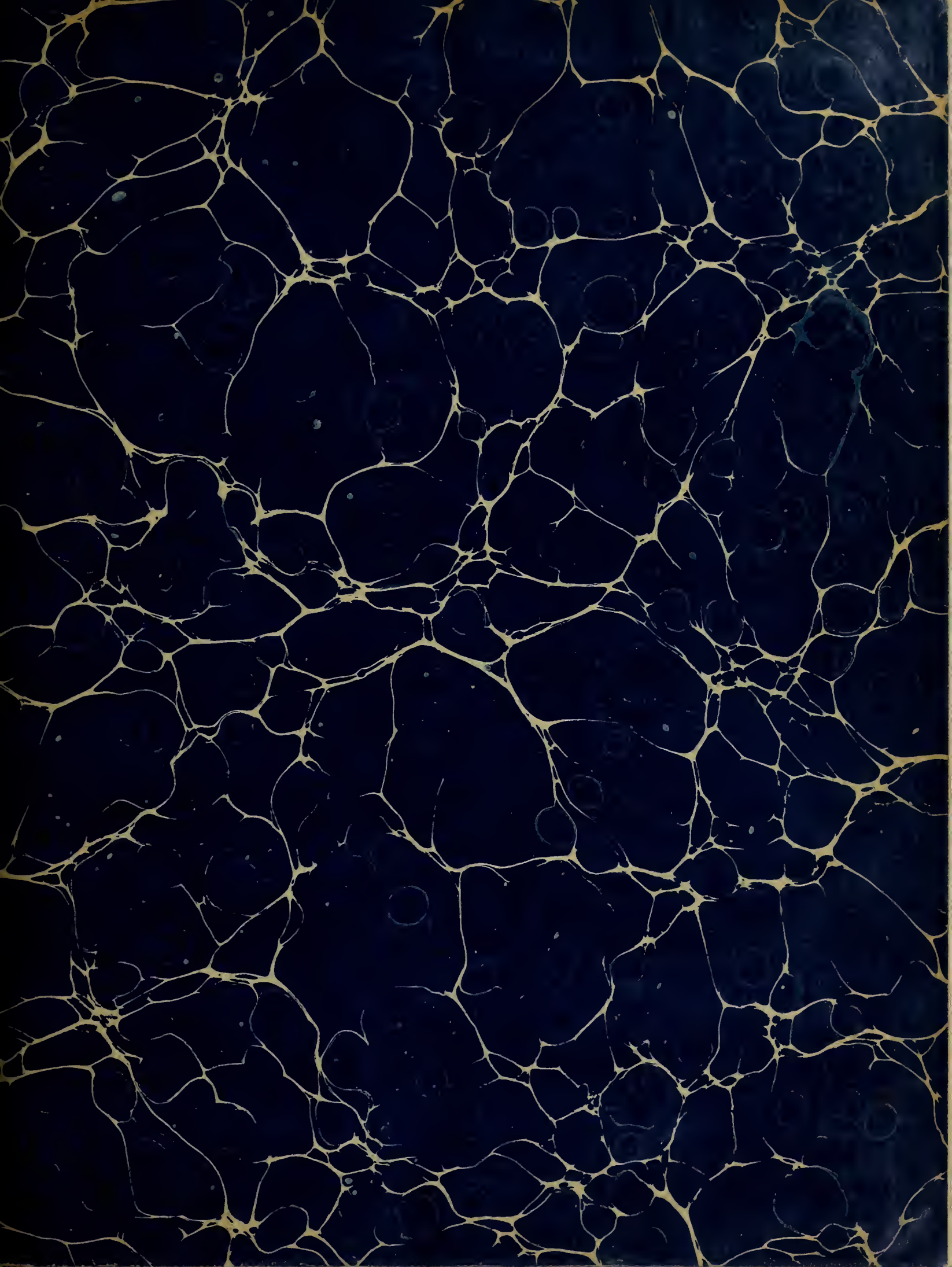
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BETTER FRUIT

VOLUME VIII

JULY, 1913

NUMBER 1

SPECIAL EDITION

on

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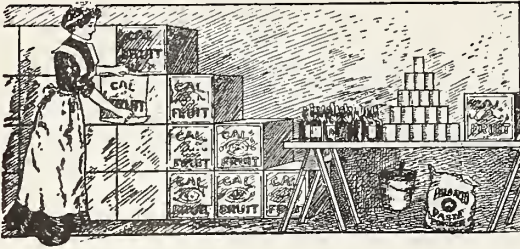
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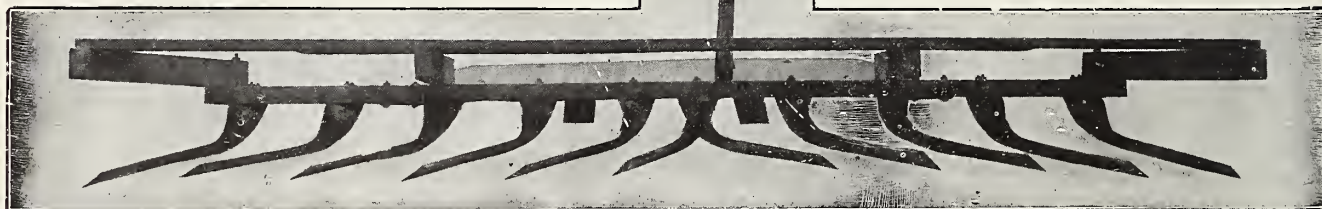
The first thing in the spring, as soon as the ground is dry enough, it should be well plowed or disced both ways, or diagonal if the trees are planted in that manner.

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BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

Common Sense Applied to the Fruit Industry

By E. H. Shepard, Editor of "Better Fruit"

THE prosperity and stability of the United States depends primarily upon agriculture, of which fruit growing is a part. Prominent government officials, railroad officers, presidents of agricultural colleges, bankers and others have devoted considerable time and thought during the last few years to studying and investigating the condition of the farmer, with a view to bettering his condition, believing that by so doing such betterment would contribute to the general prosperity of all of our people in every vocation. Some facts pertaining to the farmer have been obtained and conclusions drawn, and inasmuch as these are general they are applicable to the industry in which we are interested, that of fruit growing, it is my purpose to give you in a few brief remarks the important features as ascertained by those who have devoted much time, at great expense, to securing this valuable data for our benefit.

Is the fruitgrower getting his share? As what applies to the farmer is in a general way applicable to the fruitgrower, I believe I can convince you that we are not. I must ask you to kindly pardon a few statistics, which are always dry, as they contain valuable information. There are approximately 6,500,000 farms in the United States. The average capital invested in each one of these farms is \$6,444. The average farmer's income is estimated at \$981, and the average farmer's expense \$326, leaving a net income to the farmer of \$655, which must compensate him for the labor of himself and family and interest on the investment. The income of the average lawyer without capital is estimated at from \$800 to \$1,000 per year. The average income of the physician is about the same and the average tradesman varies perhaps from \$3 to \$5 per day. In other words, the pay of the lawyer, doctor and tradesman, in round numbers, is from \$2.50 to \$5 per day, whereas the farmer receives on an average only two dollars, out of which must be paid his interest, which would only leave about one dollar for his labor, including also such labor as may be done by his family, consequently it must be clear to you that the farmer is not being compensated for his time and capital equally with other lines of industry or work.

I shall endeavor to show you the reason by quoting some more figures which are very significant, as furnished by Mr. Yoakum, chairman of the board of directors of the Frisco lines: "The average agricultural crop of the United

States is thirteen billion dollars. Through analysis it has been ascertained that the farmer receives of this \$6,000,000,000, 46 $\frac{1}{10}$ per cent; the distributing jobber and retailer, \$4,945,000,000, 38 $\frac{1}{10}$ per cent; waste under existing marketing methods, \$1,560,000,000, 12 per cent; received by the railroads, \$495,000,000, 3 $\frac{1}{10}$ per cent." Please bear in mind that these general figures include all farm products, and I therefore call your attention particularly to the fact that they include wheat, corn

selling for 30 cents per bushel in Wau-poca County, Wisconsin, they were selling in Milwaukee at 85 per bushel, yet the freight to that city was only six and one-half cents per bushel. In other words, the dealer, distributor and retailer received 48 $\frac{1}{2}$ cents, a profit of 133 $\frac{1}{4}$ per cent. Cabbage, which was selling for \$83 per ton at River Falls, Wisconsin, when sold in Chicago brought \$300 per ton, the freight between the two points being but \$3 per ton. The railroad, the dealer and the retailer received \$217 per ton, or 250 per cent profit, while the producer received \$83 per ton. A carload of apples that was shipped from Missouri to Madison, Wisconsin, was sold at 50 cents per bushel; the wholesaler sold these apples at 75 cents per bushel and the retailer at \$1.25 per bushel. The sum which the retailer and wholesaler took was 75 cents per bushel, or 150 per cent profit on the cost paid the producer, while the producer received but 50 cents per bushel.

It seems to me that these illustrations, covering a variety of farm products such as potatoes, tomatoes, cabbages, onions and apples, are sufficient to satisfy anyone that the same or worse condition applies to all kinds of fruits which we are producing; and let me impress upon you further that on perishable products the producer receives a smaller proportion of the price paid by the consumer than on other products of the soil which are not perishable. Is this justice? I believe you will reply emphatically "no." If I were to ask this question, "Is there any country on the face of the globe where such condition does not exist?" I believe very few would reply. If I ask, "What can we do to better our condition?" I believe every one of you would begin thinking seriously and endeavor to frame up some sort of an answer. The trouble with fruitgrowers is that most of us do not realize existing conditions, which I have already indicated in a very forceful sort of way. Secondly, we do not know that the solution exists, nor on the other hand do we know what that solution is. There is one country in particular that sets a shining example of long-continued success that points the way. That country is Denmark. The solution is co-operation.

I am going to tell you what they do through co-operation, then you can compare their results in your minds with the figures which I have just given you, form your own conclusions and make up your minds to do something and do it quickly. However, I

Features of this Issue

COMMON SENSE APPLIED TO THE FRUIT INDUSTRY

IMPROVING FARM CREDITS IN AMERICA

CHOICE VARIETIES OF APPLES

THE FRUIT GROWER SHOULD DIVERSIFY

COMPOSITION OF FRUIT SOILS

DIVERSITY IN HORTICULTURE

COVER CROPS AND SHADE CROPS

and grain of all kinds, in fact all products which are non-perishable, from which is eliminated a large portion of the waste and expense in handling that fruit or vegetables are subject to.

To show you how much greater our loss is, I will give you a few specific cases, showing the returns in prices, as received by the producer and the prices paid by the consumer of vegetables. During the past season at Laredo, Texas, a great onion district, the producer received two cents per pound. The next day at Austin, Texas, only a short distance away, the consumer paid fifteen cents a pound. In other words, the dealer, railroad, commission man and the retailer divided among them 650 per cent on the price paid the grower and the grower received less than one-seventh of what the consumer paid. Tomatoes sold in Palestine, Texas, at two and one-third cents apiece, and the following day in Austin five cents. In one of these instances the producer received 13 per cent of the final settlement, while 87 per cent was divided among the railroads, wholesalers, distributors and retailers.

Governor McGovern of Wisconsin informs us that while potatoes were

do not believe you will immediately reform a long existing method, but I believe as all good things come through a process of development and evolution, that eventually the farmer and fruitgrower will come into his own and receive his just due, a fair interest on his investment and a just recompense for his labor and those of his family who assist him in his work. In Denmark, through co-operation, eggs are sorted, sized and packed for $3\frac{1}{2}$ per cent, shipping and selling cost $4\frac{1}{2}$ per cent, leaving the farmer $92\frac{1}{2}$ per cent of the final purchase price paid by the consumer. There are seventy thousand farmers in the egg producers' association. Contrast this with the percentage as received by the farmer without co-operation in Texas, which is 13 per cent. In other words, the egg producer in Denmark receives $92\frac{1}{2}$ per cent of the price paid by the consumer and the farmer in Texas receives only 13 per cent. The significance of this is indicated in the fact that through co-operation Denmark is the richest nation per capita in the world. Co-operation has already passed the stage of being a local problem and has passed into one of national importance. Some of the biggest men of our country are using their brains to help us farmers and fruitgrowers, while we horney-handed sons of toil apparently are content to work along with our hands and body, neglecting to use our brains. It is certain in my mind that God Almighty gave us fruitgrowers brains for the same purpose he gave them to any other individual, at least I feel this way about my own head. It was certainly not put on for ornament, therefore I am trying to use what brains it contains.

As I have stated, the subject is becoming national. The last congress appropriated \$50,000 for studying marketing conditions, certainly a good step in the right direction, but at the same time the government spends \$16,000,000 to assist us to produce more per acre; and let me say emphatically in this connection that even at the present time we are not getting sufficient returns for what we do produce per acre. In fact a paradoxical condition exists at present. The more we produce per acre, or in other words, the greater the crop in any one product of the soil, apparently the less the producer makes. While we must commend congress for appropriating \$50,000 for this purpose, let us all use our influence to impress upon congressmen and senators from each and every state in the Union not only the importance but the necessity of increasing the appropriation for the study of our marketing conditions, in order that those conditions may be improved so the fruitgrower will receive his just remuneration on his investment and for his labor.

But do not stop here. Texas has already set the example for every other state. The agricultural college has a small appropriation, which undoubtedly will be rapidly increased for studying marketing conditions. Em-

ploies have been engaged who are devoting their time exclusively to this subject. I believe we fruitgrowers pay the same government and state taxes as anyone else, and therefore I believe that we are justified in demanding that the government look to the bettering of our condition just the same as they endeavor to better other conditions. Not only do I think we are justified in demanding this but I believe that the government and the state should consider it a duty, because the prosperity of every state in the Union and the prosperity of the entire United States without question depends upon the prosperity and success of agriculture. I am pleased to know that President Wilson, in his inaugural address, referred to the need of better market facilities and cheaper money for agriculture. I believe we will have the earnest effort of the secretary of agriculture, the Hon. David S. Houston, because he has long been interested in questions concerning rural life and has had a splendid training which fits him for a full comprehension of our economic conditions.

The revenue from all tariffs last year amounted to \$3,026,000,000, while the actual waste on farm products, as ascertained by Mr. Yoakum, is five times this amount, itemized as follows: Loss on 100,000 carloads of fruit and vegetables by rotting on the ground, lack of shipping and storage facilities and the lack of knowledge of marketing amounts to \$35,000,000. Loss in corn stalks, rice, flax and other grain straws now wasted by being burned \$250,000,000. Additional loss due to the lack of co-operation on the part of farmers \$1,500,000,000, making a total of \$1,785,000,000. The estimated loss through lack of co-operation on the 6,500,000 farms is \$1,500,000,000, or an average loss of \$231 per farm on all products of the soil. As it is evident by figures already given that the loss on perishable products is several times greater it would undoubtedly mean that the average orchardist, through lack of proper co-operation in marketing, etc., is losing somewhere between \$500 and \$1,000 annually.

The State of Texas has set the example of market investigation by the state agricultural college. It is to be hoped that every other state in the Union will give this subject proper and serious consideration and do likewise. That agricultural colleges can accomplish wonders along this line goes without question. In the State of Oregon we have one of the very best agricultural colleges in the entire United States, and no institution that I know of is doing better work than the agricultural college at Corvallis. The state agricultural college at Pullman, Washington, is recognized for the efficient work it is doing for agriculture. Idaho and Montana are both doing excellent work. Some of the Middle Western and Eastern States have agricultural colleges which have long been important factors in developing the farming industry, among which may be mentioned Wisconsin, Missouri, New York,

Iowa and Illinois, as probably having accomplished the greatest amount of good for the farmer.

Standardization of all farm products is a subject that is comparatively new, yet one which is receiving considerable attention and one which should command the most scientific development possible. In my opinion there should be national laws governing the weights or measurement of every package of every product of the farmer that is sold in any kind of receptacle. Such laws should be national and either government inspectors or experts should be employed to see that various products are properly packed in standard packages, properly graded, and that every package is properly marked. Perhaps the importance of this suggestion may not be significant at first thought, but let me tell you how they handle the matter in Canada. There they have what is known as the "Fruit Marks Act." Every package of fruit has to be properly graded and marked according to law as to grade, while in the United States nothing of the kind is done. The result is known by many. Let me tell you that since the Canadian "Fruit Marks Act" became a law the export of apples from Canada to Europe has steadily increased in a far greater ratio than the increase in the export of apples from the United States. Don't you think, gentlemen, this is sufficient to indicate the necessity of standard packages and standard grading. At the present time we are shipping our fruit indiscriminately without any standardizing, and we are allowing the purchaser at the other end to standardize according to his own judgment, dictating the price accordingly, without our voice in the matter. It must be clear to you that if we pack a box of apples which is one-third extra fancy, one-third fancy and one-third choice, the average purchaser is only human and therefore the price that he dictates would be the market price of C grade. In other words, our lack of standardization permits the purchaser to fix the price at a minimum but does not prevent the retailer from exacting the maximum. We are to blame for this condition and it is up to us to see that the movement is promptly started for a proper standardization of all products of the farm that they are put up in packages. Every mercantile business, every factory standardizes its output. If we are to succeed we certainly should have the common sense to adopt methods of business that have evidenced their value by being proven successful in realizing the greatest profit for the producer.

The whole trend of the time is unquestionably toward co-operation. In co-operation there is success. This is not theory, it is matter of fact as proven by results. The lines of business which are paying the best profits today are the big lines of business, such as steel, oil, tobacco and others too numerous to mention. Let me call your attention to the fact that all of their goods are standardized and that these

institutions are working along the lines of co-operation, developed to the fullest possible extent. Let me tell you a fact, which you should already know. These big co-operative concerns, call them trusts if you choose, are the ones which are the most successful and the ones which have paid, and are paying today, the biggest profit on the investment. Please do not misunderstand me and assume that I advocate co-operation in the nature as indulged by some of the trusts. I believe co-operation on the part of the farmers and fruitgrowers is entirely a different matter. We cannot co-operate in quite the same way as the trusts because farmers and fruitgrowers cannot regulate their output. Herein nature takes a hand and is the governing factor as to our crops, as we are subject to drouth, too much rain, frost and various elements which either increase or decrease our crop. Again, we cannot co-operate in the same way because we cannot regulate the output on any particular product of the soil for the reason it is produced by thousands of farmers in many different sections in many states in the Union; therefore if any particular product of the soil pays a particularly good profit one year the following year it is human nature for the farmer to plant this same product somewhat more extensively, which will be a factor in preventing us from dictating the price. In other words, we cannot regulate the output or dictate the price, consequently our co-operation, in my mind, could not be considered a trust in the ordinary definition of the word. On the other hand, some of the big trusts are in a position to regulate the output and to dictate the price. The benefit to us fruitgrowers and farmers must come from co-operation in handling our crop intelligently to the best of advantage, in the most economical sort of way, and distributing it to all consuming points in proper proportions so as to avoid glutting any particular section or shortening others. If we are to receive the greatest good from the kind of co-operation I have in mind, the co-operation of the producer, the right kind of co-operation with the middlemen, both the wholesaler and the retailer, and the proper co-operation with the consumer. In other words, it should be our object to eliminate all unnecessary expense and our effort should be an earnest endeavor to secure higher prices for ourselves, which means better profits, while at the same time establishing a lower price to the consumer, thus creating a greater demand for our fruit, which, as we all know, is frequently sold at an exorbitant retail price beyond the purchasing ability of a large part of the population of our country, which naturally prevents proper consumption. Again, please do not misunderstand me. I do not mean that we can do away with the middleman or retailer or railroads. If we are to succeed by co-operation our co-operation must be fair and just in all of its principles and application. The railroad is entitled to a freight rate that will pay a satisfactory return

on the investment. The wholesaler and fruit dealer are entitled to a profit that is reasonable on the amount invested in his business and for his services. The retailer is entitled to the same. I believe that many fruitgrowers today are indiscriminately condemning many wholesale dealers who are purchasers of our Northwestern fruits. We need the good ones; we should eliminate the bad ones.

We must devise some system of solving one problem which is one of the greatest evils in marketing of fruits, that is the exorbitant retail prices. When the wholesale prices go up the retailer is mighty quick to advance accordingly; however, when the wholesale price goes down it is evident from information received from all sections throughout the East that the retailer does not reduce accordingly and frequently does not reduce at all. This evil probably accounts for a large portion of the difference between the price received by men who grow the fruit and the consumer who buys it. I am inclined to think that if we can bring about proper standardization laws and live up to them, and bring about proper co-operation, that in a large measure we can remedy this evil. I am also inclined to believe that with proper co-operation in the nature of fruitgrowers' associations handling sufficient tonnage that we could contribute one or two cents a box, thus creating a fund sufficient for advertising purposes; that we could so educate the public through advertising that we could eventually regulate the retail price to a reasonable profit. In my opinion this is about the biggest, and I might say the most difficult job, and the most important one that is before us. I believe that common sense with ability would eventually evolve a system of accomplishing the desired reforms along this line, but being only an ordinary hayseed with the usual lack of common sense, I prefer to simply suggest this matter for your consideration and leave it to greater minds than mine for solution. I do believe if we get the right kind of brains working on this problem that it can be solved.

Inasmuch as this year's experience has been full of object lessons I am going to call your attention to another matter which is worthy of considerable attention—that is the question of the different kinds of fruit to grow and the different varieties of fruit to grow of each kind. Every fruitgrower and every fruit-growing district should give this matter serious thought with a view to producing only the kinds of fruit and the varieties of the different kinds which it can grow to perfection, at least equally if not better than other large fruit-producing sections. We must be familiar with climatic and soil conditions and study marketing conditions in order to arrive at a correct solution as to our selection of kinds and varieties of fruits. Districts that expect to grow apples for the Middle West and Eastern and European shipment would do well to study carefully the prices obtained for the different varieties of apples dur-

ing the past season. Among those which have brought the best figures may be mentioned, not in the order of prices realized, as the list is not made up with reference principally to those that have brought the best prices, but with reference to varieties which are not produced extensively in the Middle West and East. For certain reasons I prefer to name this list alphabetically—Arkansas Black, Delicious, Grimes Golden, Jonathan, McIntosh Red, Rome Beauty, Red Cheek Pippin, Spitzenberg, White Winter Pearmain, Winesap, Winter Banana, Yellow Newtown Pippin. In addition to this list, composed principally of winter varieties, there are two fall varieties which have generally brought fair prices—King of Tompkins County and Gravensteins. However, with many there may be other factors that should be considered in determining varieties to grow. We have not only a good local trade but a good Coast trade, and without question our Oriental business will develop in future. This trade may be sufficient to justify the grower producing some variety not included in this list where that variety is of good quality and for which there is a good local demand. However, it should be borne in mind that in planting for this local trade, good judgment should be shown in the acreage set to this variety so as not to spoil a good market by supplying it with too great a quantity. Perhaps one variety may illustrate what I mean. The Spy is an excellent apple, and although we cannot figure on growing it, paying the freight and competing with New York and New England Spys, still it may be profitable to grow in proper quantity for home consumption. The Snow is another apple of high quality which commands a good sale at a good price, and if grown in the proper quantity for our local consumption might pay better than some of the varieties that we will grow for our Eastern and export shipment. The Baldwin is another apple entitled to consideration, particularly in the Willamette Valley for local trade, as it is of excellent quality. Perhaps there may be other varieties that might be worthy of consideration for various reasons, which on the spur of the moment I have forgotten to include. We must grow apples in our country that we can grow to the greatest state of perfection which are unequalled in the larger producing fruit districts of the Middle West and East, for Eastern and export business. Every grower in every district should determine what other kinds of fruit to plant, what varieties, and should carefully look to the area that is planted as being a factor worthy of consideration.

Previously I referred to standardization, and in this connection I desire to impress upon fruitgrowers the importance and the necessity of proper consideration of canneries, evaporators, cider mills, vinegar factories and by-product plants. These are a necessity to take care of the lower grades of good varieties and to avoid waste, and care for the surplus during the shipping season when markets become glutted.

We need them. In Wayne County, New York, practically all of the apples are utilized by these different processes and comparatively few sold fresh. I am informed that more money is made by the apple growers of Wayne County who can, evaporate or convert into by-products than is made by apple growers who sell apples fresh. These processes can and should eliminate all waste. The C grades can be canned in five-gallon cans for hotels, restaurants, and even private families, for making pies. They can be evaporated, they can be converted into cider or vinegar. The peelings and cores can be used for making jellies and wines. In Canada the cores and unmarketable apples are frequently converted into chops, which are about one-inch cubes, evaporated, packed in barrels and shipped to Germany, where they are

used largely in making apple wines and in various other ways.

We must apply common sense to the fruit industry. I have already expressed my views as to many common sense things that can be and should be done. To summarize briefly, the following suggestions seem common sense to me and therefore I advocate them for your consideration: We must grow the varieties of all kinds of fruit for which there is a market and for which we can obtain satisfactory profit. We must build canneries, evaporators and dryers to save all waste or excess. We must develop the by-product business. The government and agricultural colleges should be encouraged in creating a department for studying market conditions. We must advertise our products in order that we

may create a demand for them. We must economize in the cost of production so far as possible. Where advisable we must become to a certain extent diversified farmers in order that our income may be properly balanced so as to maintain our financial equilibrium when the fruit yield is heavy and prices are low, or when the crop is light and the price is high. We must get acquainted with the cow, the hog and chickens, and at least grow enough vegetables to eat. We must eliminate unnecessary expense between the producer and consumer. We must establish and build up the proper selling and distributing concerns to handle our product in a scientific, businesslike way. We must reduce the exorbitant retail price. We must standardize our productions. First, last and all the time, we must co-operate.

Improving Farm Credits In America

Homer C. Price, Dean College of Agriculture, Ohio State University, before National Conference on Marketing and Farm Credits, Chicago

AMERICAN farmers have never been more prosperous than they are at the present time. Prices for farm produce are high, crops are good and farm land is constantly advancing in value. Why then is the question of farm finance occupying such a prominent place in the public mind? I believe that it is because of this prosperity that farmers are awakening to the fact that they lack any adequate system of financing their enterprises. It is the prosperous business that can use capital to advantage and it is the prosperous farmer who can afford to borrow capital to invest in his business. But the industry of agriculture is made up of small, independent commercial units and lacks the advantages of combination found in other industries. Particularly is this so in the matter of credit and the individual finds himself seriously handicapped in the matter of financing his enterprises as compared with large commercial interests of the city. We have been entirely self satisfied with our agriculture in the past and have revelled in exploiting virgin soil. We have had little time or inclination to know what the older countries were doing. But all of a sudden we have awakened to the fact that we do not possess all that is worth knowing in agriculture and that in agricultural credit, co-operation, distribution and farm organization we are woefully behind some of our European neighbors.

Foremost among the nations in financing their agriculture stands Germany. For nearly a century and a half they have successfully conducted their *Landschaften* or land mortgage association, the oldest and I believe the most satisfactory institution that has been developed to furnish real credit (that is, credit on real estate) to farm owners. The great advantage of the *Landschaften* is the fact that it serves as the medium by which farm mortgages are converted into negotiable securities by means of mortgage bonds.

We recognize that there is no better security than arable farm land and no form of property less liable to be destroyed by act of man or God. But because of the difficulty of transferring title in real estate, the delay occasioned by the legal procedure of foreclosure and the tedious process of examining the title to ownership land is not the most desirable security for credit and for many kinds of investment is not accepted. Through their land mortgage associations the German farmers are carrying at the present time one billion dollars in farm loans on which they are paying on the average four per cent interest. By means of their mortgage bonds (*Pfandbriefen*) their farm mortgage securities are made as negotiable as government bonds and are "gilt-edged" securities, accepted in all circles. There is no foreign system of agricultural credit that we can hope to transplant bodily to this country any more than we can hope to transplant any other foreign institution. Our customs, laws, traditions and conditions are different and all that we can hope to do is to take principles and adapt them to our conditions so that we may accomplish the same results. If we will profit from the experience of other countries and take the best out of their systems we should be able to develop a system of rural credit in America better than anything that now exists.

Confining my remarks to real credit (that is, loans secured by farm lands), the things that we need to accomplish by means of a rural credit system, as I see it, are: (1) To convert farm mortgages into securities that are readily negotiable; (2) to provide long-time loans that are repaid on the amortization plan and which cannot be called in except for cause; (3) to convert the farm mortgages into standard securities that will be accepted for all classes of investments; (4) to secure a rate of interest commensurate with the security given; (5) to provide that loans may be made and repaid with a minimum ex-

pense and loss of time on the part of the farmers. How is this to be done? That is the question that we have to solve. We have heard repeatedly what has been done in other countries, but what the man on the land in this country wants to know is what can be done in the United States to accomplish the same results as have been accomplished in other countries. There are three ways that land mortgage associations in this country might be organized and operated to accomplish the same results as the Germans' *Landschaften* societies, that is, to make loans and issue mortgage bonds in exchange for the mortgages accepted on farm land. First, to form a co-operative association of land owners who desired to borrow capital on their farms just as the German *Landschaften* societies are organized. Although from a theoretical standpoint this is the ideal organization and for nearly a century and a half has been in successful operation in Germany, yet for American conditions, unused as our farmers are to co-operative organization, to hope to bring about the successful organization of a land mortgage association through co-operation I believe is entirely visionary.

The second method is to leave the organization of such institution to private initiative, as our building and loan associations in the cities have been developed or the land mortgage banks of Germany are operated, which are associations doing business similar to the *Landschaften* societies, but are stock companies instead of co-operative companies. There are several drawbacks to leaving the organization of such institution to private initiative. In the first place there is not enough of prospective profit to induce private interests to undertake to develop anything like a general system. In some localities there would be successful private organization just as we now have, but there is no reason to believe that such organization would become anything like general. In the second

place an association organized by private interests will be operated in the interests of those of those who loan money rather than those who borrow, and farmers cannot expect to get any great relief through such organizations. There is still another drawback to privately organized land mortgage associations, the success of such institutions as a means of extending credit depends upon the confidence the investing public has in the bonds that they issue. It is reasonable to expect that in the beginning investors and borrowers would hesitate to do business with such institutions and any system that is left to develop by means of such organizations would make little progress.

The third way that land mortgage associations might be organized and accomplish everything that has been accomplished by the German *Landschaften* societies, and to my mind the only feasible plan for American conditions, is for the respective states to organize and operate land mortgage associations. Such a plan would involve the establishing of a state land mortgage bank as a state institution for the purpose of furnishing an adequate system of credit for farm owners in the state through the sale of bonds secured by mortgages on farm real estate. The bank itself would not have the funds with which to make the loans. But in exchange for accepted mortgages would issue bonds of equal amount in denominations of \$25, \$50, \$100, \$250, \$500 and \$1,000 and bearing interest at 3, 3½, 4 and 4½ per cent. The denomination of the bonds and the rate of interest they bore to be optional with the borrower. The borrower could either take these bonds and sell them himself or have them sold through his local bank, or have the state bank sell them for him. The farmer borrowing in this way would pay on his loan the same rate of interest as the bonds issued in exchange for his mortgage bear plus one-half per cent to pay the operating expenses of the state bank and to build up a reserve fund. The German *Landschaften* allow only one-quarter per cent for this purpose, but we will put it at one-half per cent to be conservative. In addition to this would be added the per cent or fraction of a per cent that is to apply to the amortization of the principle. For example, a farmer makes application for a loan of \$1,000. His application is granted and he is given in exchange for his mortgage ten \$100 bonds bearing four per cent interest; these are sold at par, so that he realizes \$1,000 in money. He pays four per cent and one-half per cent to pay operating expenses of the bank, and he wants to pay enough additional with his interest to pay off his loan in twenty-five years, in which case it would be necessary for him to pay \$33.52 semi-annually, or the equivalent of 6.7 per cent semi-annually.

A land mortgage association organized as a state institution would at once give its bonds the standing of state or municipal bonds and they would command as favorable rates of interest. They would also command the confi-

dence of investors, as the bonds of privately or co-operatively organized associations could not possibly do. The objection may be raised that such a plan means that the state is going into the banking business. But such institutions would not carry on a commercial banking business; they would simply be the intermediary between borrowers and lenders. They would be entirely self-supporting and would simply mean that the state had taken over a fundamental public utility, namely, converting farm real estate securities into a more stable, uniform, secure and negotiable form that would be of mutual advantage to both investor and borrower. It would be a matter of prime importance to the public welfare because it would provide a means of developing our agriculture and increasing our agricultural production far beyond what is possible under our present conditions. A single state land mortgage association located in the capital of a state would be too far removed from the farmers which it is supposed to serve. To meet this difficulty a branch association of the state association should be established in every county seat. The county is the natural unit of such an organization. Land titles are registered and taxes are paid at the county seat, and it is not so far removed from the farmer but what he could go in person and arrange for his loan. The loans would be granted, the titles examined and the mortgages accepted by the county branch office, but the issuing of bonds should be limited to the state organization. Such an organization would give the advantages of centralization and would standardize the bonds issued within a state; at the same time it would give the advantage of decentralization in carrying on the business and taking it close to the individual farmer.

The question of possible loss on the part of the state on account of bad loans naturally arises. In the German *Landschaften* there have been practically no losses since they have been organized. The risk of losses would always depend upon the care with which loans are made and the proportion of the value of the property loaned. In most of the German associations the maximum amount loaned is two-thirds the assessed value of the land for taxation purposes, but when they were first organized the loans were usually limited to one-half the value. In establishing such a system as I have outlined it would be necessary for the state to appropriate sufficient funds to establish the system and to provide a reserve fund to guarantee bonds in addition to the mortgages held by the association. This initial appropriation to be paid back from the earnings of the association within a reasonable length of time. The question of the taxation of the bonds, the foreclosure proceedings, the transfer and registration of land titles are all questions intimately connected with a land credit system and questions that should be considered in connection with any rural credit system. If a state were to

undertake the establishment and operation of a land mortgage association as I have suggested, I believe it would be important to its success to adopt the plan of registration of land titles known as the Torrens system. Several of our states have already adopted this system and others have legislation under consideration providing for its adoption. The advantages of the system are that it establishes beyond a question the validity of the title because after a title has once been officially registered the government guarantees it. It also very greatly lessens the expense of land transfer and shortens the time required. If a state system of land credit were established and it was made as one of the requirements that the title to farm land must be registered before it would be considered as security for a loan, the possibility of questionable titles would be at once eliminated and the probability of loss from bad loans very greatly reduced. The plan proposed makes no provision to furnish credit to the "landless man," which I recognize as one of our most urgent needs as well as one of the most difficult to meet. But let us do one thing at a time and provide a plan for extending the credit of the man who has land and can offer a tangible security. The question of personal credit will have to be worked out on some other basis, and we can better judge how to provide it after we have solved the problem of real credit.

Long-Distance Telephone Rates

Mr. C. A. Kerr, chairman of the committee on telephone and telegraph rates, in the last issue of the *Spy*, a publication devoted to the interests of the International Apple Shippers' Association, has rendered a report of the work done by the committee to date in an endeavor to secure a decrease on the rates charged for long-distance telephones. Fruitgrowers' associations and the fruitgrower are very extensive users of long-distance telephones, and perhaps the fruit business in proportion to its volume uses the long-distance telephones and the telegraph more than any other one line of business. On account of the wholesale way in which this service is used the International Apple Shippers' Association feels that some concession should be granted by telephone and telegraph companies in the way of lower rate. Through the great work done by Mr. Wm. M. Roylance of Provo, Utah, the State of Utah is already granted a reduction in rates of about twenty per cent. The significance of the immense saving this will be to the fruit companies is evidenced from a statement in a letter from Mr. Roylance, in which he states that it will amount to \$10 to \$25 per month for their firm, and when you take into consideration the immense number of fruit dealers all over the country, you can readily realize that this reduction will run up into the hundreds and thousands of dollars per year.

The Composition of Fruit Soils in the State of Washington

By R. W. Thatcher, Director Agricultural Experiment Station, Pullman, Washington

THE percentage of essential elements of plant food in the typical soil of each of the more prominent fruit districts of the State of Washington is shown in table I. These figures were obtained by averaging the results of all the analyses of soil samples from each of these districts which were collected during the progress of the soil survey of the state, which was conducted by the Division of Chemistry of the State Experiment Station during the years of 1893 to 1907 inclusive. These figures show the total supply of these plant-food elements in the soil, determined by the official methods of soil analysis. There is, of course, no means of determining from these figures just what amounts of plant food will be available during any one growing season, i. e., what its "fertility" or productive capacity, so far as plant food is concerned, for that particular season or crop will be. However, the standards shown in table II are often used as a basis for classifying soils with reference to their relative "richness" in plant-food supplies. These facts are all presented in terms of percentage of the "fine earth" of the soil, i. e., the portion of the soil which is fine enough to serve as a source of plant-food supply. If it is desired to know these same facts in terms of pounds per acre of these elements, it is easy to compute this from the weight of soil per acre. For average soils this is about 4,000,000 pounds per acre foot, i. e., an acre of average soil one foot deep weighs approximately 4,000,000. A soil carrying 0.471 per cent of potash would therefore have $4,000,000 \times .00471 = 18,840$ pounds of potash in each foot in depth. Computations of plant-food supplies are usually made to include only the top foot of soil, as by far the greater proportion of the crop's food is drawn from this part of the soil, chiefly from the tilled portion.

In order that any soil shall produce the maximum crop which the moisture supply and weather conditions will permit, enough of the plant food of the soil must become available during the growing season of the crop to build up this maximum crop growth. The process by which unavailable plant food, in the form of mineral particles and partially decayed vegetable matter in the soil, becomes available to plants is essentially one of decay. Humus, or actively decaying vegetable matter, is the chief agent in making plant food soluble or available. The problem of productivity, from the standpoint of food supply, is therefore that of keeping the processes of humus decay going on rapidly enough to make sufficient plant food available for the needs of the growing crop. In soils containing low percentages of humus, this means the plowing under of vegetable materials, such as manure or cover crops, followed by suitable tillage to encourage the processes of decay. In soils

well supplied with vegetable or organic matter, proper tillage alone is sufficient to maintain these favorable conditions.

The amounts of the different plant-food elements which are found, by analysis, in the mature crop are generally considered a measure of the quantity of these materials which the crop took from the soil. If there are no losses due to other sources than the growing of the crop, these amounts then represent the yearly drain upon the total food supply of the soil. Table III shows the amounts of the critical elements of fertility which are found in the indicated yield of each of some of the common fruit and garden crops. The figures given are, in each case, for the yield of edible material and do not include the plant food used by the non-edible leaves, stalks, etc., it being assumed that these will be returned to the soil each year. The plant food used in making the wood growth of fruit trees is, of course, not accounted for in these calculations.

Reference has been made above to the value of a sufficient supply of vegetable matter in the soil in order that its active decay may insure an ample supply of available plant food. Humus performs many other important beneficial functions in the soil. It affects very beneficially the physical proper-

ties of the soil—increasing the ease of tilth, moisture-holding capacity, capacity to absorb heat, etc., and decreasing the tendency to "puddle" when wet and "bake" when dry. Any farm crop which is grown for the sole purpose of plowing it under to increase the supply of organic matter in the soil is known as a "green manure." Green manures affect the soil beneficially in many ways. Some of the possible benefits are: (1) The addition of vegetable matter or "humus," with its attendant beneficial effect upon the physical and chemical properties of the soil. (2) Increasing the nitrogen content of the soil by fixation of nitrogen of the air, when leguminous crops are used as the green manure. (3) Using surplus available plant food, which might otherwise be lost. (4) plant food from lower depths may be brought nearer to the surface and made available for subsequent crops. The kind of crop which may best be used as a green manure depends upon which one or more of these beneficial effects is most desired. If the addition of humus, or an increased supply of decaying vegetation, is the only necessity then any rank-growing farm crop may be used. The more succulent or juicy plants are best, as they decay much more quickly and are more easily in-

TABLE I—COMPOSITION OF SOIL FROM TYPICAL FRUIT DISTRICTS

(Figured in percentages)

Soil from	Type	Potash (K ₂ O)	Lime (CaO)	Phosphorus pentoxide (P ₂ O ₅)	Nitrogen	Humus	Total organic matter
Whitman County	Basaltic silt loam	0.471	0.514	0.361	0.175	2.486	8.733
Spokane Valley	Spokane gravelly loam	0.385	0.600	0.190	0.039	1.410	6.060
Yakima Valley	Yakima sandy loam	0.455	1.154	0.029	0.032	0.150	1.560
Okanogan Flats	Brewster silt loam	0.294	0.668	0.145	0.062	1.650	4.464
Walla Walla Valley	Walla Walla sandy loam	0.413	1.098	0.142	0.275	4.245	10.741
Wenatchee Valley	Wenatchee sandy loam	0.518	0.714	0.225	0.061	1.942	2.969

TABLE II—PRACTICAL RATINGS OF SOILS BY PLANT-FOOD PERCENTAGES

According to Professor Kaeker, Halle Sta., Germany

Grade of Soil	Potash	Phosphoric acid	Lime Clay soil	Lime Sandy soil	Total Nitrogen
Poor	Below .05	Below .05	Below .10	Below .05	Below .05
Medium	.05—15	.05—10	.10—25	.05—10	.05—10
Normal	.15—25	.10—15	.25—50	.10—20	.10—15
Good	.25—40	.15—25	.50—1.00	.20—30	.15—25
Rich	Above .40	Above .25	Above 1.00	Above .30	Above .25

TABLE III—PLANT-FOOD REQUIREMENTS OF DIFFERENT FRUIT AND VEGETABLE CROPS

(Taken from Van Slyke's "Fertilizers and Crops")

Variety of Fruit	Number of trees per acre	Nitrogen (Pounds)	Phosphoric acid (P ₂ O ₅) (Pounds)	Potash (K ₂ O) (Pounds)	Lime (CaO) (Pounds)
Apple	35	52	14	55	57
Peach	120	75	18	72	114
Pear	120	30	7	33	38
Plum	120	30	9	38	41
Kind of Vegetable	Yield per acre	Nitrogen	Phosphoric acid (P ₂ O ₅)	Potash	Lime
Cabbage	10 tons	60	20	80	..
Onions	300 bu.	39	15	38	..
Cantaloupes	5 tons	22	8	40	..
Tomatoes	250 bu.	30	11	53	..
Watermelons	10 tons	34	12	60	..

TABLE IV—NITROGEN CONTENT OF DIFFERENT LEGUMES

<i>Crop</i>	<i>Per cent of Nitrogen in Dry Matter</i>			
	<i>Tops</i>	<i>Roots</i>	<i>Nodules</i>	<i>Whole Plant</i>
Tangier pea	3.63	2.47	4.00	3.50
Field pea	2.68	2.38	2.84	2.62
Spring vetch	2.61	2.54	5.09	2.58
Hairy vetch	2.96	2.45	5.07	2.80
Alfalfa	1.72	1.27	6.92	1.50
Red clover	2.30	1.91	5.97	2.18
White clover	1.87	1.73	5.86	1.82

TABLE V—GAIN IN NITROGEN BY PLOWING CROPS UNDER

Crop	Nitrogen per ton (Pounds)	Probable yield per acre (Tons)	Nitrogen gain per acre (Pounds)	Market value of gain in nitrogen
Red clover	43	3	129	\$25.80
Alfalfa	30	3	90	18.00
Field peas	52	4	208	40.16
Tangier peas	70	3	210	42.00
Hairy vetch	56	4	224	44.80

corporated in the soil. If, however, the supply of nitrogen in the soil is small and its increase is either the chief necessity or a desirable addition to the increased humus content, then some leguminous crop must be used, as no other farm crop has the power of utilizing atmospheric nitrogen or of returning to the soil any essential element of fertility which it did not draw from it. If it is desired to bring up from below some of the mineral plant food which is present in deeper layers of soil, then a deep-rooting crop should be used.

The legumes, or leguminous crops, are a group of plants which are characterized by growing their seed in pods and by having peculiar knots or nodules on their roots. These nodules are formed by the action of a certain group of bacteria, immense numbers of which are found in each nodule, which have the peculiar property of being able to use the gaseous nitrogen of the air for their own growth and supplying this element as they die and decay to the host plant on whose roots they are located. Included in this group are alfalfa, all the clovers, vetches, peas, beans, etc. No other group of plants or animals, so far as is now known, is thus able to make use of atmospheric nitrogen. Legumes may grow in soils which are rich in available nitrogen without the presence of the nodule-producing bacteria, deriving their nitrogen supply directly from the soil as do other crops, but have the distinctive power of being able to flourish in soils poor in nitrogen if the proper bacteria are present to grow upon their roots and supply them with nitrogen from the air, and when so grown to increase the supply of soil nitrogen when plowed under as green manures. The amount of actual gain in nitrogen to the soil from the growing of leguminous cover crops depends upon several factors, such as (1) the kind of crop used; (2) the amount of nitrogen already present in the soil, as this affects the proportion of nitrogen which the crop will take from the air, and (3) the proportion of the crop which is returned to the soil.

To determine the nitrogen content of different legumes analyses have been made by the writer in the laboratory of the State Experiment Station of the different parts of various leguminous crops, the samples being taken from adjacent plots where each legume was given equal conditions of soil, moisture supply, etc., for its growth. The results of some of these analyses are shown in table IV. As has been pointed out, the proportion of this nitrogen which the crop will gather from the air, through its bacteria, depends upon the supply of available nitrogen present in the soil. On average soils, with a generous supply of nodules developing on their root systems, it is estimated that about one-fifth the total nitrogen content of the crop comes from the soil and the other four-fifths from the atmosphere. If the tops, or foliage growth, of the crop is cut off and removed from the land, the gain in nitro-

gen to the soil is slight, if any. It is generally estimated that for most common forage crops, the dry matter in the root system constitutes about one-fifth and the above-ground portion four-fifths of the total growth. By comparing this statement with that in the preceding paragraph it will be seen that, under ordinary conditions, the amount of nitrogen returned to the soil by the decay of the roots only of the crop would be just equal to the proportion of the crop's total supply which originally came from the soil. If, however, the tops, as pasturage, soiling crop, or hay, are fed to livestock and the manure therefrom returned to the land to be plowed under nearly ninety per cent of the total nitrogen of the crop will be returned to the soil. If the entire crop is plowed under, all of the nitrogen which it contains is restored to the soil, and as the crop decays becomes available to succeeding crops.

The gain of nitrogen per acre to the soil if any one of these crops be plowed under as a green manure may be calculated by multiplying the percentage of nitrogen in the whole plant by the weight of dry matter produced on an acre. This weight of growth will, of course, vary extremely in dif-

ferent seasons, on different soils, and with different cultivation. Table V shows examples of possible gains, which may be made, computed from the yields per acre as given. The present market value of nitrogen in commercial fertilizers as sold in this state is about twenty cents per pound. The market value of the gain in nitrogen per acre by plowing under the average crop as shown is indicated in the last column. It is probable that the yields assumed in this table are higher than could be obtained in actual field practice. Certainly they are larger than would be obtained in the drier sections of the state. They are not larger, however, than may be secured under irrigation, or in those parts of the state where the annual rainfall is heavy. Not all of the nitrogen shown as gain in the above table would be net gain in every instance. On soils rich in nitrogen, the crop takes only a part of its nitrogen from the air, securing a considerable proportion from the soil itself. Probably the poorer the soil is in nitrogen the greater the proportionate gain in nitrogen from the air. The net gain is, therefore, likely to be greatest in those soils which are in greatest need of nitrogen.

Effect of Mulches of Different Depths

By R. W. Thatcher, Pullman, Washington

THE purpose of the soil mulch is to break, as completely as possible, the capillary connection by means of which the soil moisture moves upward and to protect the moist soil below from the rapid evaporating effect of moving air. No mulch can accomplish these results perfectly and prevent all loss by evaporation. Since the mulch, being dry soil in which plant roots cannot grow, is just that much lost soil so far as furnishing plant food is concerned, it ought not to be any deeper than is necessary to conserve the largest possible proportion of soil moisture. This depth will vary with the different types of soil. Professor Thom, soil physicist of the Washington State Experiment Station, working with the ordinary "volcanic ash" soil of the Palouse regions, found the following effect of mulches of different depths upon the loss of soil moisture from the soil during the month of August, 1912:

EFFECT OF DEPTH OF MULCH UPON EVAPORATION OF SOIL MOISTURE	
Depth of Mulch	Moisture loss, calculated as acre-inches
No mulch.....	1.66
1 inch.....	1.42
2 inches.....	1.15
3 inches.....	1.02
4 inches.....	1.01
5 inches.....	.98

These results show that while mulches deeper than three inches save slightly more moisture, the saving is too little to compensate for the additional loss of plant-food supply. Similar results have been reported from measurements made by the United States investigations on irrigated lands in California, where it was found that

a three-inch mulch saved 72 per cent of the total possible saving and that increasing the depth of the mulch to ten inches only resulted in a saving of 88 per cent of the total possible amount. For all ordinary soils and conditions, therefore, a three-inch mulch is a most efficient depth.

Rise of Capillary Moisture in Different Types of Soil

By R. W. Thatcher, Pullman, Washington

The rate at which water rises through soil by capillary action depends upon the size of the soil particles and the proportion of humus which the soil contains. In an experiment conducted by Professor C. C. Thom, soil physicist of the experiment station at Pullman, Washington, the following results were obtained. The different soils were placed in large galvanized iron tanks in the open field, all equally compacted, and a constant supply of water fed to each at a depth of two feet below the surface. The amount of water, expressed both in pounds and in the equivalent acre-inches, which came up through the soils and evaporated away into the air during the month of August, 1912, is shown in the following table:

Kind of Soil	Loss in pounds	Loss, as acre-inches
Sand.....	33.3	2.19
Loam.....	26.2	1.66
Clay.....	24.0	1.53
Humus.....	18.4	1.17

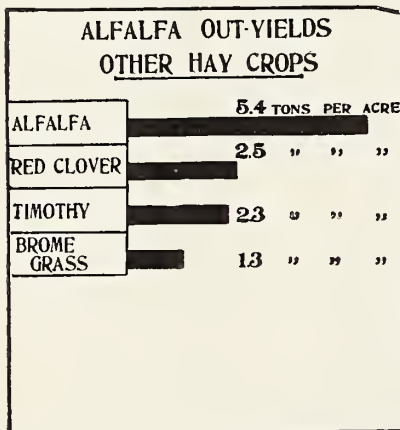
Editor Better Fruit:

I consider your paper a valued one to all fruit growers. Yours truly, J. R. Whissen, Edinburg, Virginia.

Alfalfa Should Be Grown On Every Farm—It Is Profitable

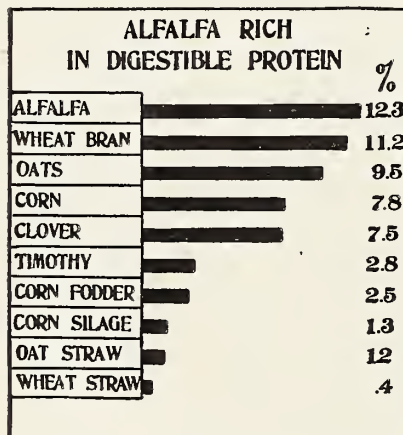
By J. E. Buck, International Harvester Company Agricultural Extension Department

ALFAFA is a profitable crop because of its abundant yields, three harvests being nothing unusual in the Corn Belt states. The average yield of alfalfa is about double the average yield of clover. Alfalfa increases farm values because it enriches the soil instead of depleting it, as grain crops do. Corn or wheat or any other grain crop grown on alfalfa sod yields much more abundantly than the same crops grown on the same field before alfalfa was grown there. Alfalfa is the premier crop, because it excels every other crop in yield per acre, in feeding

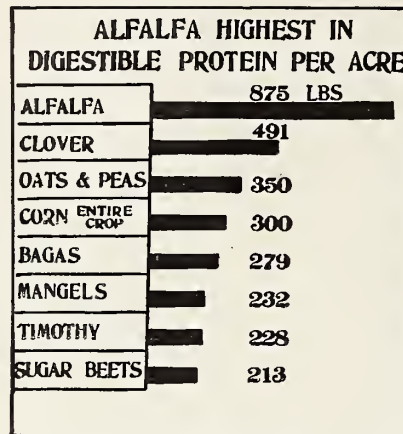


value, as a drouth resister and as a soil enricher. Alfalfa is no harder to grow than clover, and therefore because of its many excellent qualities should be grown on every farm. No farmer can do better than to follow the admonition of this chart and make a beginning to grow some alfalfa. Start now. The accompanying charts prove beyond question its many advantages.

Only about 5,000,000 acres of alfalfa is grown in the United States today, as

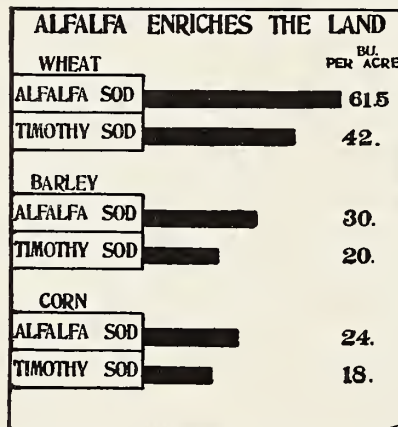


compared with about 50,000,000 acres of timothy and clover, 46,000,000 acres of wheat, and more than 100,000,000 acres of corn. Of the 5,000,000 acres under alfalfa only 218,000 acres of this crop is grown east of the Mississippi River. As you will note by referring to the chart, nearly 1,000,000 acres of alfalfa, or one-fifth of the entire area, is grown in the State of Kansas alone.

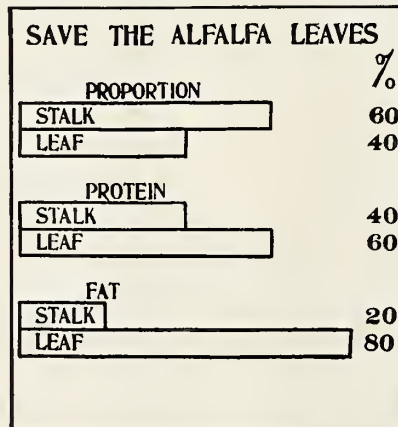


In the rank of states growing alfalfa Nebraska is second, Colorado third and California fourth. The great Corn Belt states, such as Iowa, Illinois and Wisconsin, rank very low in the production of alfalfa—and it is in the Corn Belt states, therefore, that the need for growing alfalfa is found to be the most urgent.

According to the 1910 census of the hay crop, the State of Wisconsin grew

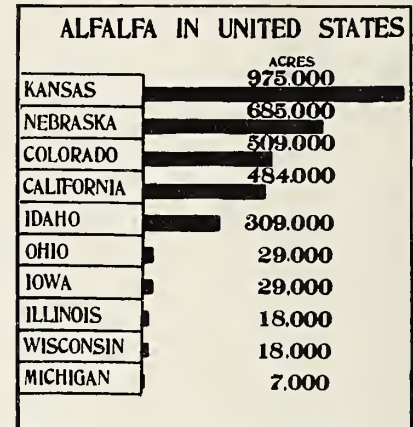


18,000 acres of alfalfa, which averaged 2.8 tons per acre for the entire state, and the average acre value of the crop was \$31. During the same year the combined acreage of timothy and clover averaged 1.6 tons per acre, valued at \$14. It costs no more to grow an acre of alfalfa than it does to grow an acre of timothy or clover. Therefore, as-

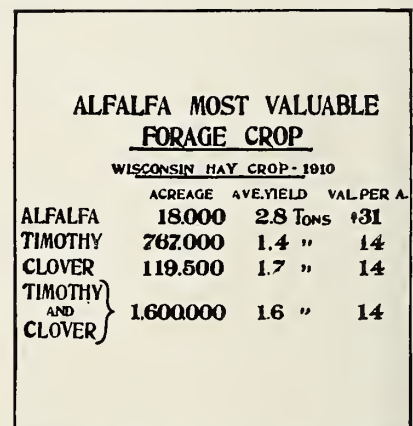


suming that the cost of growing an acre of clover or timothy to be \$10, the farmer would clear \$4 per acre in growing these crops, whereas the same farmer if he grew alfalfa would reap a profit of \$21 per acre. This is a very strong chart and should be carefully studied by everyone who is interested in making the farm more profitable.

By means of a series of experiments carried on over a number of years, the average yield of alfalfa per acre has been found to be 5.4 tons, whereas red clover yielded only 2.5 tons, timothy 2.3 tons, brome grass 1.3 tons. Not only



does alfalfa yield more than twice the tonnage of red clover, but it also makes a much more valuable feed. In view of the foregoing, why should the farmers of the United States keep on growing 50,000,000 acres of timothy and clover and only 5,000,000 acres of alfalfa? Would it not be much more profitable to simply reverse the figures and grow 50,000,000 acres of alfalfa and only 5,000,000 acres of clover and timothy? Think it over.



Of the entire alfalfa plant, the stalk comprises 60 per cent and the leaf 40 per cent, whereas the quantity of protein in the stalk is only 40 per cent, while the protein in the leaf is 60 per cent. Moreover, only 20 per cent of the fat is to be found in the stalk, while 80 per cent is in the leaf. It is, therefore, very important that the alfalfa be harvested at the proper time, and carefully handled so that all the leaves will be saved.

Of all crops alfalfa stands at the head of the list, alphabetically and otherwise. In the matter of digestible protein, alfalfa leads with 12.3 per cent, surpassing even wheat bran by 1.1 per cent. This chart presents some startling disclosures as to the great value of alfalfa, but it may not be very easy for everyone to understand the full mean-

GROW YOUR PROTEIN DONT BUY IT	
ALFALFA EQUAL TO BRAN	
BRAN COSTS	\$21 PER TON
ALFALFA	\$5.15
<hr/>	
RENT FOR FIVE YEARS	\$25.00
SEED	2.00
PREPARATION AND SEEDING	5.00
MANURE LIME INOCULATION ETC	4.00
CUTTING 12 TIMES	36.00
	\$72.00
<hr/>	
TOTAL YIELD FIVE YEARS 14 TONS	
\$72.00 ÷ 14 = \$5.15 COST PER TON	

ing expressed in percentages. Therefore another chart has been prepared showing that alfalfa ranks highest in digestible protein per acre. We believe everyone can understand this chart, which is expressed in very simple terms. By careful analysis it has been found that alfalfa yields 875 pounds of digestible protein per acre, as compared with 491 pounds in clover. This is a very remarkable showing in favor of alfalfa. Protein is the most essential element in feedstuffs, therefore it will readily be seen how valuable alfalfa is

ALFALFA SHOULD BE GROWN ON EVERY FARM	
1 IT IS A PROFITABLE CROP	
2 INCREASES FARM VALUES	
3 EXCELS EVERY OTHER CROP	
IN YIELD PER ACRE	
IN FEEDING VALUE	
AS A DROUTH RESISTER	
AS A SOIL ENRICHER	
4 NO HARDER TO GROW THAN CLOVER	
5 MAKE A BEGINNING-----START NOW	
GROW SOME ALFALFA	
6 MOTTO	
ALFALFA ON EVERY FARM	

as compared with clover, oats and peas, corn, timothy or sugar beets. By careful analysis it has been found that alfalfa is equal to bran in protein content. Wheat bran costs about \$21 per ton, whereas alfalfa can be grown for \$5.15 per ton, as shown by the figures presented on this chart. Why should anyone buy wheat bran when it costs four times as much as alfalfa, and alfalfa makes just as good, or even better, feed than wheat bran?

Not only does alfalfa yield much more abundant harvests than the other forage crops, but it enriches the land, while it yields rich harvests for the farmers. The experiment set forth in the accompanying chart was made in Canada, where it was found that alfalfa

sod yielded 61.5 bushels of wheat per acre, as compared with 42 bushels of wheat on timothy sod. Barley yielded 30 bushels per acre on alfalfa sod, and only 20 bushels on timothy sod. Canada is not a corn country, and therefore the yield was light, but the difference was still found to be in favor of alfalfa sod, which yielded 24 bushels on timothy compared with 18 bushels on timothy sod. These findings are simply astounding, and furnish very excellent reasons why alfalfa should be grown on every farm. In speaking of the value of the alfalfa crop, Hon. A. P. Grout, president of the Illinois Alfalfa Growers' Asso-

ciation, says: "I know of nothing which will do more for the development of the state, or add more to its wealth, than a thorough knowledge and understanding of alfalfa."

Editor Better Fruit:

Your magazine has certainly done good work in behalf of this cause and deserves the commendation of all Northwestern fruit growers. Couldn't get along without "Better Fruit." Every month's issue is worth the price of a year. Yours truly, F. A. Schlick, of Bitter Root Valley Irrigation Company, Rockford, Illinois.

Editor Better Fruit:

We have just received the February issue and it is a "dinger." With best wishes, we are yours truly, R. M. Kellogg Co., Three Rivers, Michigan.

Statement Fruits and Vegetables Shipped to Seattle, Washington

Report of F. N. Rhodes, Horticultural Inspector District No. 9, State of Washington
PACKAGES OF FRUITS SHIPPED TO SEATTLE DURING THE YEAR 1912

	From Washington	From Outside Points	Total Packages	Equal to
Apples	538,553	18,255	556,808	883 cars
Oranges	163,822	163,822	163,822	429 "
Lemons	42,676	42,676	42,676	113 "
Bananas	114,450	114,450	114,450	327 "
Pears	53,778	15,719	69,497	87 "
Peaches	298,282	39,373	337,655	336 "
Plums and prunes	27,454	23,237	50,691	54 "
Apricots	16,694	4,276	20,970	21 "
Tomatoes	39,401	104,638	144,039	142 "
Grapes	61,072	132,735	193,807	183 "
Grape fruit	13,849	13,849	13,849	34 "
Cantaloupes	21,719	69,659	91,378	155 "
Watermelons	5,985	17,758	23,743	190 "
Strawberries	107,593	46,653	154,246	244 "
Cherries	40,088	16,675	56,763	46 "
Raspberries	28,913	3	28,916	41 "
Blackberries	10,794	.....	10,794	20 "
Loganberries	7,998	98	8,096	8 "
Gooseberries	3,224	366	3,590	5 "
Huckleberries	2,954	.....	2,954	3 "
Cranberries	.....	2,166	2,166	13 "
Currants	2,951	.....	2,951	5 "
Crabapples	4,311	110	4,421	5 "
Pineapples	.....	1,661	1,661	3 "
Tangerines	.....	462	462	.. "
Nectarines	448	.....	448	.. "
Persimmons	.....	383	383	.. "
Japanese oranges	.....	24,603	24,603	17 "
Japanese pears	.....	1,031	1,031	.. "
Mixed fruits	2,449	685	3,134	4 "
Mexican limes	.....	216	216	.. "
Figs	.....	1,156	1,156	1 "
Pomegranates	.....	693	693	.. "
Cassabas	.....	712	712	5 "
Quinces	331	48	379	.. "
Yakamines	542	.....	542	.. "
Prickly pears	.....	44	44	.. "
Total fruits	1,275,534	858,212	2,133,746	3,374 cars

PACKAGES OF VEGETABLES SHIPPED TO SEATTLE DURING THE YEAR 1912

	From Washington	From Outside Points	Total Packages	Equal to
Potatoes	472,400	55,281	527,681	2,110 cars
Onions	22,172	47,761	69,933	277 "
Cabbage	6,078	18,292	24,370	137 "
Lettuce	12,197	12,462	24,659	122 "
Cauliflower	403	8,369	8,772	54 "
Celery	1,205	6,702	7,907	44 "
Sweet potatoes	.....	21,359	21,359	131 "
Carrots	4,818	1,079	5,897	25 "
Beets	1,458	145	1,603	5 "
Mixed vegetables	13,225	14,115	27,340	134 "
Rhubarb	10,972	6,800	17,772	35 "
Peppers	3,498	7,227	10,725	13 "
Cucumbers	10,125	680	10,805	21 "
Asparagus	20,791	17,390	38,181	32 "
Corn	10,003	509	10,512	15 "
Spinach	5,234	119	5,353	9 "
Peas	1,787	4,601	6,388	12 "
Eggplant	2,718	828	3,546	8 "
Squash	1,328	266	1,594	7 "
Turnips	666	862	1,528	3 "
Rutabagas	867	133	1,000	3 "
Artichokes	.....	992	992	.. "
Garlic	.....	331	331	.. "
Beans	396	2,906	3,302	9 "
Parsnips	2,031	.....	2,031	7 "
Pumpkins	528	.....	528	.. "
Brussels sprouts	.....	393	393	.. "
Total vegetables	604,900	229,602	834,502	3,213 cars
Total fruits	1,275,534	858,212	2,133,746	3,374 "
Grand total	1,880,434	1,087,814	2,968,248	6,587 cars

[EDITORIAL NOTE.—The report of F. N. Rhodes shows the quantity of all kinds of fruit and all kinds of vegetables consumed in one year by a first-class American city of 250,000 population, and affords a splendid opportunity for the fruit grower and truck gardener to figure on the probable consumption of each article mentioned in the entire United States. It should be of great value to the fruit grower and truck gardener in estimating the quantity necessary to supply local territory and cities which are tributary to his market. If the grower knows the supply necessary to furnish 250,000 people and is adjacent to a city of 25,000 people, by ascertaining the number of acres set to any variety of fruit or vegetable mentioned in this list and the probable yield, he can determine just how many acres it would be advisable for him to plant. By ascertaining the average price for the different kinds of fruits and vegetables he can not only determine wisely in advance the number of acres to plant, but also the probable profit.]

North Pacific Fruit Distributors' Grading Rules

From the Spokesman-Review, Spokane, Washington

EXTRA FANCY.—This grade shall consist of sound, smooth, matured, clean, hand-picked, well-formed apples only; free from all insect pests, disease, blemishes, bruises and other physical injuries, stings, scald, seah, sunscald, dry or bitter rot, worms, worm holes, decay, spray burn, limb rub, water core, skin puncture or skin broken at stem. All apples must be of good matured color, shape and condition characteristic of the variety.

The following varieties, defined as to color, shall be admitted to this grade: Solid red varieties: Aiken Red, Arkansas Black, Black Ben Davis, Fall Wine, Gano, Geniton, Jonathan, King David, Mammoth Black Twig, Missouri Pippin, Oregon Red, Spitzenberg (Esopus), Steele Red, Vanderpool. Striped or partial red varieties: Ben Davis, Delicious, Gravenstein, Hubbardston None-such, Jeffries, King of Tompkins County, MacIntosh Red, Northern Spy, Rome Beauty, Stayman, Wagener, Wealthy, Snow, York Imperial.

Color requirements for extra fancy are as follows: Solid red varieties to have not less than three-fourths good red color and the size of 175 and smaller, when admitted to the grade, to have at least 90 per cent good red color. Striped or partial red varieties, as designated above, to have not less than one-half good red color; when the size of 175 or smaller is admitted to this grade they must have at least three-fourths good red color. Except that Gravensteins, Jeffries and King of Tompkins County, in all sizes, must be at least one-third good red color. Red cheek or blushed varieties, such as Hyde King, Red Cheek Pippin, Winter Banana, Maiden Blush, must have a red cheek. Ortleys must be white, yellow or waxen. Yellow or green varieties, such as Grimes Golden, White Winter Pearmain, Yellow Newtown and Cox's Orange Pippin, must have the characteristic color of the variety.

No sizes admitted to this grade smaller than as follows: Aiken Red, 200; Arkansas Black, 175; Ben Davis, 163; Black Ben Davis, 163; Cox's Orange Pippin, 163; Delicious, 150; Fall Wine, 200; Gano, 163; Grimes Golden, 200; Gravenstein, 200; Hubbardston None-such, 163; Hyde's King, 150; Geniton, 200; Jonathan, 200; Jeffries, 225; King of Tompkins County, 163; King David, 200; Mammoth Black Twig, 150; Missouri Pippin, 200; MacIntosh Red, 200; Maiden Blush, 163; Northern Spy, 150; Oregon Red, 175; Ortley, 175; Rome Beauty, 163; Red Cheek Pippin, 163; Spitzenberg (Esopus), 200; Steele Red, 163; Stayman, 163; Snow, 225; Vanderpool, 163; Winesap, 225; Wagener, 200; Winter Banana, 150; White Winter Pearmain, 200; Wealthy, 200; Yellow Newtown, 225; York Imperial, 163. All boxes to be lined and cardboard to be used top and bottom.

Fancy grade: In this grade all apples must be matured, hand picked, clean and sound, free from insect pests,

water core, sun damage, broken skin, scald, scale, dry or bitter rot, worms, worm stings, infectious diseases and all other defects equally detrimental, excepting that slight limb or leaf rub, scratches or russetting will be permitted provided that no apple shall show total blemishes aggregating more than one-half inch square. Fruit clearly misshapen, bruised or bearing evidence of rough handling shall not be permitted in this grade. The varieties admitted to this grade are the same as in the extra fancy. All boxes are to be lined and cardboard to be used top and bottom.

Color requirements are as follows: The solid red varieties must have fully one-third of good solid red color. Striped or partial red varieties must have at least one-fourth of good red color. All apples of a green or yellow variety shall be of characteristic color.

No sizes shall be admitted to this grade smaller than as follows: Aiken Red, 175; Arkansas Black, 163; Ben Davis, 150; Black Ben Davis, 150; Cox's Orange Pippin, 150; Delicious, 150; Fall Wine, 175; Gano, 150; Grimes Golden, 175; Gravenstein, 175; Hubbardston None-such, 150; Hyde's King, 150; Geniton, 175; Jonathan, 175; Jeffries, 200; King of Tompkins County, 150; King David, 175; Mammoth Black Twig, 150; Missouri Pippin, 175; MacIntosh Red, 175; Maiden Blush, 150; Northern Spy, 150; Orange Red, 163; Ortley, 163; Rome Beauty, 150; Red Cheek Pippin, 150; Spitzenberg (Esopus), 150; Steele Red, 150; Stayman, 150; Snow, 200; Vanderpool, 150; Winesap, 200; Wagener, 175; Winter Banana, 150; White Winter Pearmain, 175; Wealthy, 175; Yellow Newtown, 200; York Imperial, 150.

Single grade: The following apples to be packed in one grade, combining the extra fancy and fancy grades as provided by these grading rules, size not smaller than 163 count, windfalls absolutely excluded. This pack to be marked or labeled as fancy: Apple of Commeree, Baldwin, Ben Hur, Bismarck, Canada Red, Chicago, Champion, Delaware Red, Golden Russet, Hoover, Ingram, Kaighn Spitzenberg, Kentish, Kinnard, Mann, Mother, McMahon, N. W. Greening, Pewaukee, Pryor Red, Rambo, Rhode Island Greening, Roy Russet, Russian Red, Salome, Senator, Shakelford, Stark, Swaar, Wallbridge, Westfield, Willow Twig, Yellow Bellefleur.

Exceptions: Summer varieties such as Astrachan, Bailey's Sweet, Beitingheimer, Duchess, Early Harvest, Red June, Strawberry, Twenty-ounce Pippin, Yellow Transparent and kindred varieties not otherwise specified in these grading rules, together with early fall varieties, such as Alexander, Blue Pearmain, Wolf River, Spokane Beauty, Fall Pippin, Waxen, Talman Sweets, Sweet Bough and other varieties not provided for in these grading rules, as grown in sections of early maturity, shall be packed in accordance with the

grading rules covering fancy grade as to defects, but regardless of color rules; size not smaller than 163 count for the larger-growing varieties and 225 count for the smaller-growing varieties; windfalls to be absolutely excluded. All boxes to be lined and cardboard used top and bottom.

C grade: This grade is provided to be used when market requirements justify and shall consist of apples not smaller than 163 count. This grade shall be made up of all merchantable apples not included in extra fancy or fancy grades. Apples must be free from all insect pests, worms, worm holes and infectious diseases. Serious physical injuries, skin puncture, bruised or broken skin will not be permitted, and not exceeding two stings, thoroughly healed. There are no requirements as to color except that the fruit must be matured. This grade to be packed in accordance with trade requirements.

Indorsements: Your executive board advises the use of the regular Northwestern standard box in all sections, inside measurements $10\frac{1}{2} \times 11\frac{1}{2} \times 18$, with solid ends. We believe that we should make this the uniform box as standard in all sections. Inasmuch as the laws, as well as the trade requirements, will force us to sell our apples by numerical count, we abolish the system of designating or manifesting fruit by tiers and we employ the numerical system exclusively hereafter. The recognized and indorsed counts for the Northwestern standard apple pack are as follows: 36, 45, 48, 56, 64, 72, 80, 88, 96, 104, 112, 113, 125, 138, 150, 163, 175, 188, 200, 213, 225.

Crabapples: These should be carefully assorted as to varieties, making one grade only, keeping out all insect pests, worm holes, sting, scale, misshapen and blemished fruit. Put up in apple boxes, line the box, fill in gently so as to prevent bruising.

Lady apples: These should be packed in half boxes, boxes lined, remembering that the more attractive the better the sale. Make only one grade, keeping out all insect pests, worm holes, sting, scale, misshapen and blemished fruit.

The Salem Fruitgrowers' Union has the following board of directors for the season of 1913: C. L. McNary, president; W. S. Walton, secretary; Philip Gilbert, vice-president; A. Verler, C. O. Constable and W. I. Staley. The directors appropriated a neat sum to increase the consumption of loganberries, which are grown around Salem more extensively than any other section of the Northwest. This berry is also being planted largely around Independence, Corvallis and Eugene. The loganberry is growing in popularity, and so far the supply is not equal to the demand. Canned, it makes one of the finest fruits for pies in existence, having the acidity and delightful flavor of the wild blackberry. In fact the editor of "Better Fruit" ate a loganberry pie in California thinking it was made from wild blackberries.

No-Rim-Cut Tires *10% Oversize*

Controlled by Secrecy

The essential feature in No-Rim-Cut tires is made under lock and key.

We control it by secrecy.

Other attempts to make tires which can't rim-cut have cost fortunes in faulty tires.

No-Rim-Cut tires, for years and years, have served hundreds of thousands well. Not one has ever rim-cut.

That is why the demand centers on them. Goodyear tires have come to outsell every other tire.

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The secret lies in six flat bands of 126 braided wires. They are vulcanized into the tire base.

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With this hookless tire you turn your rim flanges outward—not inward as with clincher tires. Then the tire, when wholly or partly deflated, rests on a rounded edge. Rim-cutting is made impossible.

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But our braided wire bands are considered essential to a faultless tire of this type.

Again and again other ways have been tried. And thousands of tires came back for replacement because the ways were wrong.

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years, in an overwhelming way. We have sold over one million automobile tires in the past 12 months alone.

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Now, our mammoth production has brought down the cost of this wanted type of tire.

No-Rim-Cut tires used to cost one-fifth more than clinchers. Little by little the cost has been cut.

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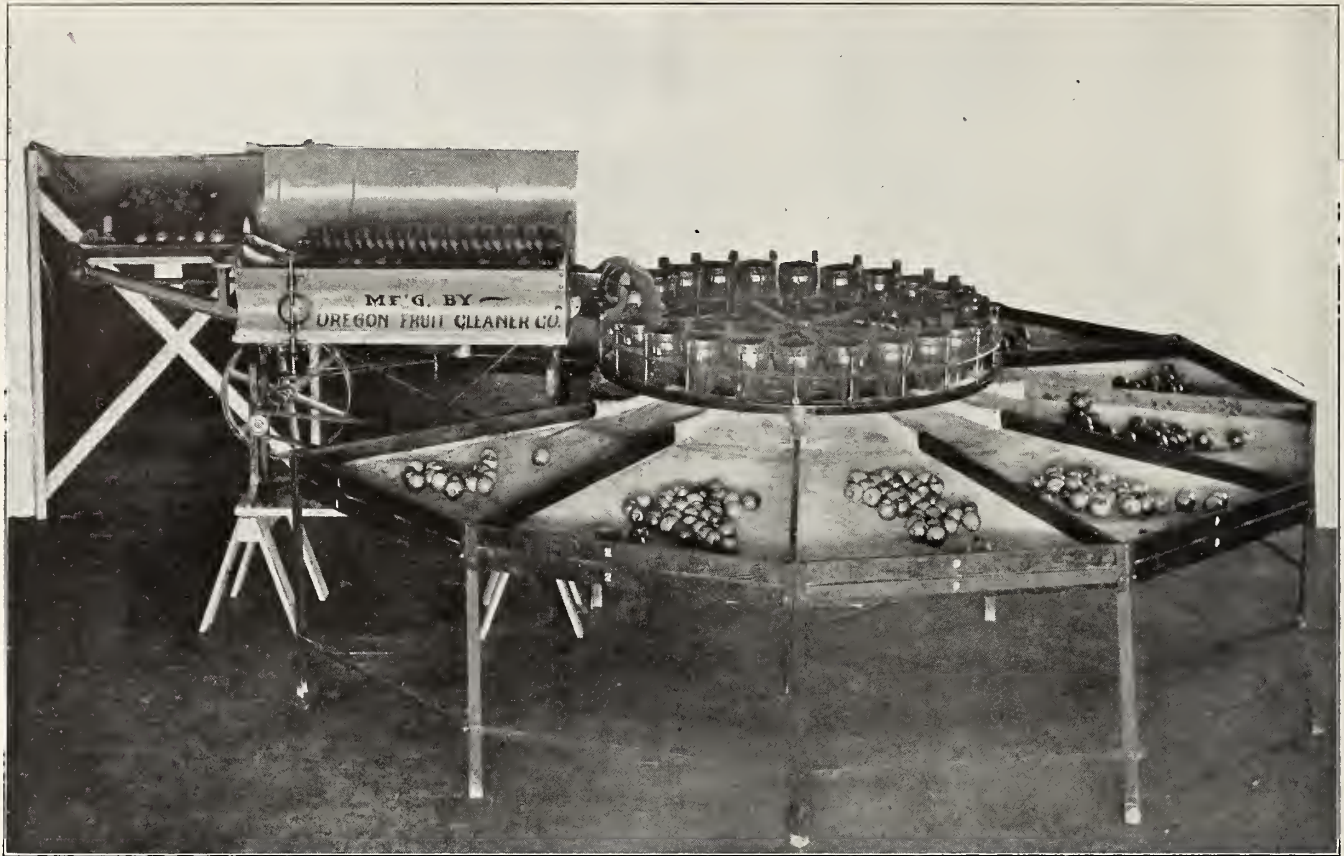
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YOUR aim has always been *better fruit*—improving the quality and pack until you have finally attained a high standard. Now isn't it time for you to seek a *Better Outlet* for this fruit—time to improve the marketing of your crop as well as the quality? Years of striving have resulted in *better fruit*; now let us give you

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Our method is simple and direct, without frills or secrets; connections in every market of consequence; an experienced and capable organization, trained in the handling of Northwestern Apples and Deciduous Fruits. By specializing in these products and taking on no more than can be handled with our *personal* attention, we have been steadily successful in marketing them.

Crop marketing is the big problem confronting every Northwestern fruit man today. If you aim to secure *better marketing* as well as better fruit, you will write us now and ask us to explain our method.

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Only Two Grades to be Shipped from Wenatchee

UNITY and harmony among the apple shippers of the Wenatchee Valley this season are assured by the agreement reached by the Wenatchee Produce Company, Wenatchee Valley Fruitgrowers' Association, Wenatchee-Columbia Fruit Company, Northwestern Fruit Exchange, Cashmere Union and Peshastin Association. There will be only two grades, called one and two, uniform and thorough inspection, central accounting and the respecting of shippers' contracts with growers. If one concern has entered into a contract with a grower to handle his fruit all the others will refuse to deal with that grower. A committee has been appointed to codify the grading rules. Grade one will be better than the present extra fancy; number two will be better than C grade, all of former fancy and the inferior extra fancy. The proposal to ship but two grades of apples this year from the Wenatchee Valley by the big shipping interests represented here has met with very general favor from the growers all over the valley. It has caused a great deal of talk and it seems to be the general impression that but two grades should be shipped. While the committee has not formally drafted the new grading rules, yet on most points there was unanimity of opinion.

First grade: Number one grade will be slightly better than the present ex-

tra fancy in so far as concerns the size of the apples. The Wenatchee Exchange grading rules for physical condition of first grades were adopted at the meeting Saturday as follows: "That all apples must be of natural color, shape and condition, characteristic of variety. Apples heavily coated with dirt must be cleaned. Apples must be sound, smooth, well formed, free from all insect pests, disease, blemishes, injuries, worms, worm holes, stings, scale, scab, sunscald, dry rot, decay, fungus, water core, spray burns, limb rub, skin punctures, skin broken at stem. Each apple must be wrapped. Boxes must be lined with paper. Pack must be standard." It was decided that all solid red apples shall be 75 per cent red to be included in number one grade. All partially red varieties shall be 50 per cent in color to be included in number one grade. This includes such varieties as Delicious, Gravenstein, Jonathan, Rome Beauty, Stayman Wine-sap, Ben Davis, Apple of Commerce and Snows. Blushed varieties shall be accepted in the first grade which have a distinctly colored cheek, such as Red Cheek Pippin and Winter Banana. Yellow varieties may be accepted in the first grade which have a good natural color, such as Grimes Golden, Ortley, White Winter Pearmain and Yellow Newtown. Number one grade will include all apples 138 and larger, except

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free from bruises, worms, worm stings, water core, sun damage, broken skin, scald or disease of any kind and of proper shape, according to variety. No apples smaller than 163 shall be allowed in this grade, except the Old Winesap, Jonathan, King David, Missouri Pippin, Snow, Yellow Newtown and Grimes Golden, which will be accepted as small as 175. Rome Beauty, size 113 and larger, without color, shall be allowed in this pack. All apples of solid red variety in this grade must show at least one-quarter of red color. Partially red apples shall show at least 10 per cent color. Apples will be accepted in this grade with slight blemishes, such as limb rubs and scratches, providing, however, that no apples shall show total blemishes greater than one-half inch square in area. All varieties of yellow apples will be allowed in this grade."

A Great Time at Salem, Oregon

The prune growers of the State of Oregon called a meeting to take place on the 3d, 4th and 5th of July, for the purpose of creating a greater demand and better distribution of both fresh and dried prunes and for the purpose of taking the important step of standardizing the prune industry. Everything is strongly tending to standardization of the fruit package in the Northwest. The cherry growers of Salem announced early in June their dates for the cherry fair, July 3, 4 and 5. The cherry industry around Salem and in the Willamette Valley is very extensive. There is a large acreage and the quality is fine. Salem will certainly have something doing, as they will have the usual Fourth of July celebration, the cherry fair will be held and the prune growers from all over the state will meet.

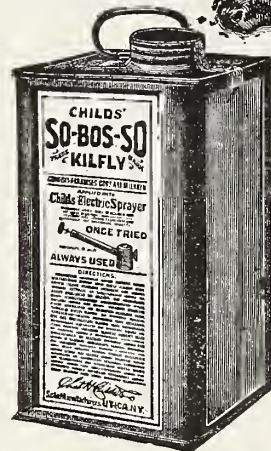
Editor Better Fruit:

Your notice in regard to the expiration of my subscription received. I certainly do wish to renew it, and am enclosing a check to your order. "Better Fruit" is by far the best publication of its kind I have ever seen. You deserve great credit for it. With best wishes for your success, I am, very truly yours, Harry W. Aetion, New York City.

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J. W. W. MacDONALD
Wenatchee, Washington

Winesap, Jonathan, King David, Missouri Pippin, Snow, Yellow Newtown and Grimes Golden, which will be accepted as small as 150.

Second grade: Number two grade will be a much higher grade than the present C grade. There will be no third grade. The apples not eligible to either number one or number two grades will be culls. The shippers decided on the adoption of a second grade, according to the rules of the Wenatchee Valley Fruitgrowers' Association. This ruling is as follows: "In this grade all apples must be sound,

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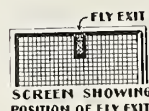
Model 33M —Two Passenger Roadster; 33 H. P. long-stroke motor (3 $\frac{1}{2}$ x5 $\frac{1}{4}$). Price \$1,150	Model 40LK —Five Passenger Touring Car; 40 H. P. long stroke motor (4 $\frac{1}{2}$ x5). Price \$1,650
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Model 40A —Two Passenger Roadster; 40 H. P. long-stroke motor (4 $\frac{1}{2}$ x5). Price \$1,650	Model Six —45—Five Passenger Touring Car; 45 H. P. long stroke motor (3 $\frac{3}{4}$ x5 $\frac{1}{4}$). Price \$2,000
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The Cyclopedia of American Horticulture presents the combined labor and experience of the 500 foremost American and Canadian authorities on horticultural subjects, which it has taken years of painstaking editorial work to put into its present convenient and attractive form. These four magnificent volumes place at the disposal of the horticulturist, whether practical, amateur or scientific, an ample and readily accessible account of every subject which at any time may be of interest or practical use in his calling.

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HOOD RIVER, OREGON

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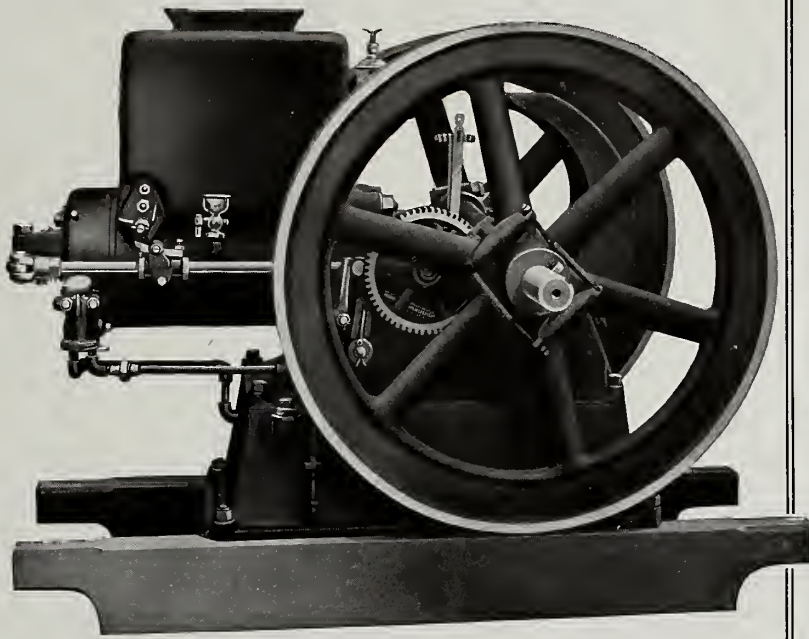
Diversity.—A few days ago Lebanon, Oregon, held a big strawberry festival, which was a wonderful success. Mr. H. B. Miller, who has long been identified with the horticultural interests of Oregon, recent consul at Belfast, Ireland, and formerly at Yokohama, gave a very interesting and instructive address. One of the features of this talk was particularly striking, that feature being "Diversity." He called attention to the fact that the most prosperous, happiest, best educated, most cultured and intelligent nations of the world were the nations which are diversified; that is, these nations are the ones where the people have blonde hair, black hair, brown hair; blue eyes, black eyes, brown eyes, etc., stating also in the same way the happiest and most prosperous sections of the country were those where there was a large diversity of interests, intensified farming, thickly settled communities. In such were to be found always good roads, good schools, lighting systems, telephones and all of the other conveniences which go to make life in the country one of pleasure and interest instead of one of monotony and drudgery. The average fruit grower, particularly the farmer, is inclined to devote all of his time, attention, thought and conversation to the particular products which he produces, the growing of his crops, the care, culture, marketing and the prices. It is to be regretted that, generally speaking, his whole

attention is absorbed with these subjects, to the neglect of his household, his family and frequently his own comfort as well as the comfort of his family. It is high time that the fruit growers and farmers should begin to realize the importance of making the home life in the country attractive and doing something to lessen the drudgery of their wives and children in their work. Every fruit grower and every farmer should have running water in the house, the yards should be made attractive with flowers and grass, he should have a good vegetable garden, a flock of poultry, proper telephone connections and, where there is electricity, rates should be secured that would enable the farmer to light his home with electricity the same as city people do. If we fruit growers and farmers will do some of these things we will find that our income is larger, our home life happier and the children will be inclined to stay on the farm instead of seeking employment in the city, at wages at best frequently only sufficient for the most meager kind of living.

Canneries.—There are two canneries in the Northwest conducted on a co-operative basis. One is at Eugene, of which Mr. Holt is manager, and the other is at Corvallis, of which Mr. Tinker is manager. They are endeavoring to solve for their districts diversity for the fruit grower and farmer in a very intelligent and scientific manner. Their first problem is to find out what can be successfully grown in their particular localities and then to ascertain what can be marketed to advantage, so as to pay a satisfactory profit. On top of this they are endeavoring to control the acreage that is set to the different varieties of fruits and vegetables, so as to figure out a plan whereby their canneries can be continually in operation from the beginning to the end of the season. Apparently there are few districts that realize the full value of such canneries to the same extent as Eugene and Corvallis. These canneries are studying thoroughly the manufacturing of all by-products and will eventually succeed in caring for all surplus by canning, evaporating or through by-products. The loganberry is an example. There was a good demand for loganberries as fresh in a local way, but the acreage became too great for fresh consumption so far as trade was established. They have found that the loganberry commands a ready sale as canned, because it makes one of the best pies that is made, resembling the wild blackberry pie, which is unexcelled. In addition the loganberry makes excellent juice, which is free from alcohol and is equal if not superior to the finest grape juice. An immense trade is being built up for strawberry extract, which is used to flavor strawberry ice cream. The field for our canned fruits, vegetables, evaporated fruits and the by-products is immense and should command the serious attention of every fruit district in the Northwest.

Diversity for the Fruitgrower.—Fruitgrowers are learning that occasionally we have light yields and once in a while a bumper crop, when prices are low and profits small. Fruitgrowers are realizing that such conditions will happen, consequently the problem of maintaining an even income must be solved in some other way. As a result many orchardists are devoting part of their land to producing hay, dairying and truck gardening, while others are making side line specialties of chickens, hogs or bees. The diversity of fruit crops is also advisable. Strawberries are a crop that bring good returns; these come in the summer time when the fruitgrower usually needs a little extra money. The prices obtained for apples and various other fruits has been, generally speaking, very high during the past and the fruitgrower of the Northwest as a rule has been more or less prodigal. While it seems strange nevertheless it is true that the fruitgrower, who is really a farmer in one sense of the word, frequently buys his own milk, butter, eggs, vegetables and bread as well. Not only does the fruitgrower buy his own bread but the town that supplies him sends away to some large city for this bread instead of buying at the local bakery and helping to support the community. Fruitgrowers are realizing the significance of these statements. It is to be hoped and believed that the fruitgrowers will adjust themselves to this new condition of affairs. Every fruitgrower should keep one cow or more, have a flock of poultry, raise a few pigs, produce his own vegetables, and like the good old-fashioned farmer, endeavor to produce everything on the farm which he eats, so far as possible. Money saved is just as valuable as money made.

Consumption.—The consumption of fruit and vegetables in a city like Seattle, of 250,000 people, affords a splendid opportunity for the fruit grower and farmer to do some figuring in reference to general consumption. There are many cities surrounded by farms that have practically all of the vegetables shipped in from the outside. A little investigation on the part of the farmer who lives near a city, say of 5,000, should enable him to ascertain how many acres in the surrounding territory are planted to asparagus, for instance, and if he finds it not sufficient acreage to supply the city he would be justified in setting out a good asparagus bed, providing his soil and climatic conditions were suitable. In fact, this has been done by some fruit growers, and they have found the groceryman in the little city not only willing but anxious to take the local supply of vegetables, for the very good reason that they are perfectly fresh and give his trade much better satisfaction than vegetables that had been picked several days before and shipped long distances. While this idea might be carried out in detail by giving a number of illustrations, still it is not necessary, because the one illustration is sufficient and the



3,000 Stover Gasoline Engines Could Not have been sold in the Northwest

if the Stover Engine had not been a crackerjack of an engine. A few could have been sold through advertising, but the thing that sold more than 3,000 Stover Engines throughout the Northwest is the goodness of the engine. Users of Stover Gasoline Engines do not hesitate to say that the Stover is the best engine on the market. It is this opinion in the minds of the owners that boosts the sale of this engine. Stover Engines have been tested out in every service and have been found wanting in none of them. They have strength sufficient to withstand the hardest knocks of timber service, the accuracy of adjustment demanded in an engine for electric generating, the ease of operation that adapts it particularly to the intermittent service of the farm or pumping. They meet every requirement—are simple and understandable. A single rod operates all important parts. Stover Engines are not of the hair spring type that are thrown out of adjustment at the slightest opportunity; they are of the sturdy, stick-to-it type that you can operate as well and as economically as an expert, and in case of an accident you can in most cases make repairs yourself, same as you would to any other piece of machinery about the place. We carry a complete stock of Stover Engines—sizes 1 to 60 horsepower—and also a complete stock of repair parts. Write us, if interested, for our catalog and circular containing letters from users in all parts of the Northwest.

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fruit grower is intelligent enough to do his own figuring, and by doing it he certainly can find many products that he can grow on his own place from which he can receive a good revenue in his local town.

Soil Conditions.—From the indiscriminate planting of orchards throughout the entire United States on all kinds of soils and in all climatic conditions it is apparent that the average individual thinks the only thing necessary for an orchard is to buy a piece of land, plow the ground, dig the holes and stick in the trees. Orchardists who have been in the business some time are well aware of the fact, and some are finding it out to their sorrow, that such is not sufficient. Fruit growers generally are realizing the importance of intelligently studying soil conditions. Some valuable information is given elsewhere in this edition upon this subject by Professor R. W. Thatcher in two articles, entitled "The Rapidity of Rise of Moisture" and "The Composition of Fruit Soils."

Varieties of Fruits.—Last year the fruit grower apparently learned his lesson and learned it pretty well in reference to varieties, although perhaps not thoroughly as yet. The fruit grower found that many varieties of apples would not return the cost of packing and freight. Those who plant now certainly should be wise enough to select varieties that are adapted to their

particular section, that will command a satisfactory price sufficient to pay a fair profit. He should graft over such varieties as prove unprofitable from any cause. In recent issues of "Better Fruit" many statements have been given showing the returns received by various associations in different districts. These certainly ought to assist the fruit grower in determining what varieties of apples are profitable for him to continue raising.

Standardization.—The fruit growers of the Northwest are finally and suddenly beginning to realize the necessity of standardizing their fruits. While there will be during the present year many concerns operating in the Northwest, it is fair to assume that the grading rules of these different concerns will be very much alike in nearly all districts, and it is to be hoped that next year one common standard of grading rules will be adopted and become universal, as far as boxed apples are concerned. The prune growers of Oregon have called a special meeting for the purpose of standardizing the output of prunes, both fresh and evaporated. Every mercantile business has to standardize every article it handles. *The farmer conducts the only business in which the output is not standardized.* It is to be hoped that sometime in the near future every product of the farmer that is put up in packages will be standardized both as to grade and quality and as to the size of the pack-

age. When this is done the farmer and fruit grower will find that their product will command a far readier sale and have an established value. With the proper standardization and the established value which follows it will be far easier for the associations handling the output of the farmers to negotiate their bills of lading and other securities in a way so as to enable them to finance their business far more profitably than they have in the past.

Mr. and Mrs. H. M. Gilbert of North Yakima, in their tour around the world, carried with them large quantities of apples which they displayed in various cities where they visited, also disposing of them to the tourists on the different steamers on which they traveled. This is one of the proper ways of advertising our Northwestern fruits and its value is indicated by the fact that already Richey & Gilbert have received orders for Yakima apples from a dozen or more foreign countries, including orders from the Sandwich Islands, Japan, Island of Ceylon, China and India.

An Eastern dealer advises the Northwest to grow the following varieties of apples: Winesap, Newtown Pippin, Spitzenberg, Rome Beauty, Jonathan, Stayman Winesap, Ortley, MacIntosh Red, Grimes Golden, Winter Banana, Arkansas Black, White Winter Pearmain, Delicious, Ben Davis and Gano.

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KINDLY WRITE OR WIRE US FOR OUR PRICES

BETTER SPRAY COMPANY, Portland, Oregon

BETTER SPRAY COMPANY, Portland, Oregon—Gentlemen: We used a quantity of Better Spray Arsenate of Lead last season, and have nothing but praise from those who used it. We do not think we have ever had a cleaner crop of apples here in Lane County. J. B. HOYT, Manager Eugene Fruit Growers' Association, Eugene, Oregon.

BETTER SPRAY COMPANY, Portland, Oregon—Gentlemen: We are pleased to advise you that we achieved very satisfactory results from the Better Spray Arsenate of Lead which we used last season on our pears and plums, as well as peaches, with the result that we had no worms at all, while many of our neighbors, due either to lack of spraying or using an inferior article, lost very large quantities of fruit because it was so wormy. One cannot do better than use your brand of spraying materials, and we hope your market will constantly increase, as we understand it is just being introduced in this Northwest section. Yours truly, THOMPSON FRUIT COMPANY, North Yakima, Washington.

Estimates of 1913 Fruit Crop in the Northwest

THE information published under this head, as furnished by growers and other fruit operators in the different districts, will be found of value to our many readers. The condition of weather between now and picking time may change the final result somewhat, but preparation for marketing may be guided to a great degree by these figures.

P. S. Darlington, district horticultural inspector of Chelan, Douglas, Okanogan and Grant Counties, Washington, on June 10 gave out the following estimate of the fruit crop for this year:

ESTIMATE ON APPLES

Variety	Pct. of Variety	Pct. of Crop	Cars
Winesap	26	105	1,660
Jonathan	18	70	766
Gano, Black Ben and Ben Davis	10	25	152
Arkansas Blacks	2	100	122
Rome Beauty	8	100	487
Delicious	3	80	146
Stayman	6	50	182
Black Twig	4	50	121
Spitzenberg	7	60	255
Other varieties	16	45	437
			4,328

SUMMER FRUIT ESTIMATE

Kind of Fruit	Pct. of Crop	Cars
Peaches	95	410
Pears	50	139
Apricots	85	116
Plums	75	32
Cherries	75	35
		732

This estimate is for Chelan, Douglas, Okanogan and Grant Counties and takes into consideration fruit shipped by express as well as that shipped by freight.

Hood River experts at the present are rather inclined to be conservative about estimates, as they feel at the present it is difficult to determine approximately the yield as somewhat of a drop is taking place at the present time. Growers and various experts say a good crop, a fair crop or a lighter crop than last year. While the general opinion is not very definite, some think it may be more than last year, some about the same and some think there will be less. The crop last year was about 1,000 cars. Generally odd years of the Northwest have always been light crops. It is fair to assume that the year 1913 will be, generally speaking, a light crop. While there is considerable young orchard coming into

bearing it must be remembered that the quantity on young trees is never very great and the increase is always slow until they reach full-bearing age. Frost affected some fruit sections of the Northwest, shortening the crops very materially. During the blossoming period cold weather and rain prevailed, which apparently seems to have interfered with pollenization. In the middle of June, in some districts, quite an extensive drop was occurring. Many apples, and even full clusters, were dropping off, the stems of apples turning yellow. In general it may be

said in conclusion in reference to the Northwest crop that after the June drop is through that probably all the early estimates will have to be readjusted. Various reports from Eastern States state the crop will twenty-five per cent, some fifty per cent less than last year. Some Easterners have estimated the entire apple crop of the United States thirty per cent less than

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last year, while others state there will not be over fifty per cent of a normal crop and that last year's crop was above normal, being one hundred and ten per cent of a crop. In New York and New England it is a light year for Baldwins, and therefore in all probability the entire crop of this section will be materially less than last year.

* * *

Yakima Valley: Yakima Valley fruit crop will be handled by a number of different concerns this year. The Yakima Valley District Association, composed of twenty-three sub-centrals located in different fruit sections, will handle its output through the North Pacific Fruit Distributors. The Yakima County Horticultural Union, the oldest association in the valley, will handle a good-sized tonnage this year. The Yakima Valley Fruitgrowers' Exchange has recently been incorporated with a capital stock of \$10,000 and will handle its output through the Northwest Fruit Exchange. Among the independent firms that will be factors in handling the Yakima Valley crop this year should be named Richey & Gilbert, The Thompson Fruit Company, The Yakima Produce Company, The J. M. Perry Company, Hays Fruit Company and Lynch & Taylor. Yakima Valley Fruitgrowers' Exchange has elected the following trustees: Albert S. Congdon, chairman; A. W. Speyers, secretary; A. P. Reed, N. E. Culbertson and C. E. Saunderson.

* * *

Wentchee Valley: The Wenatchee Valley output will probably be handled by several different concerns. The Wenatchee Valley Fruitgrowers' Association—the old association—has re-elected Mr. W. T. Clark as president, and their output will be handled on the "Clark" plan, which was originated by Mr. Clark and put into practice for the first time during the season of 1912. The Wenatchee Valley Fruitgrowers' Exchange has recently been incorporated with a capital stock of \$10,000. Its output will be handled by the Northwest Fruit Exchange. The Wenatchee Valley Produce Company, of which Conrad Rose is president, which has always handled a large proportion of business, will probably be operated in the same manner as last year, or it may be made into a mutual association with Conrad Rose as manager.

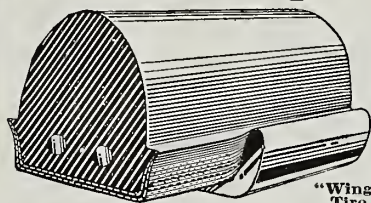
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Yakima Valley crop: Mr. Fred Thompson of North Yakima, who has always been very reliable in estimates, on May 23 estimated the crop of Yakima Valley as follows: 2,900 carloads of apples, 1,600 carloads peaches, 125 carloads of prunes and plums, 50 carloads of grapes and 20 carloads of cherries.

* * *

Grand Ronde Valley, Oregon: Reports of this district indicate the apple crop will be thirty-three and one-third per cent of last year. Other fruits will turn out splendidly, the yield being practically a full crop.

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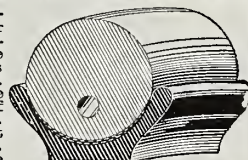
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California Fruit Distributors

CHAS. E. VIRDEN, General Manager
Sacramento, California

The Wenatchee Fruit Alliance, an organization composed of the growers of small fruits, cherries, peaches, plums, etc., have made arrangements, so we are informed, to handle the output through the Randolph Fruit Company. The pack will be improved in every way possible, properly graded and standardized. Satisfactory arrangements have been made for financing the crop in the way of sufficient advances.

* * *

The Wenatchee Fruit Alliance estimate they will handle 400 cars or more of early soft fruits, including peaches, apricots, pears, cherries and small fruits.

The Apple bloom: In 1913 the apple bloom was very profuse throughout the Northwest, indicating at that time a very heavy yield. Immediately following the drop of the bloom there was quite an extensive shedding in many districts, which occurred in the month of May. About the first of June the drop began to occur, which was quite extensive and heavy in many districts, and particular on some varieties.

* * *

The prune industry is very extensive throughout the Willamette Valley, with a very large acreage around Eugene. The Salem Fruit Union will collect about 2,500,000 pounds and Mr. H. S. Gile about 2,000,000 pounds.

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The Rogue River fruit crop will be handled by the Rogue River Valley Fruitgrowers' Association, consisting of a membership of between 400 and 500 growers. This is the old association in the valley. Its output will be handled through the Northwest Fruit Exchange. A new association has been formed this year called the Rogue River Co-operative Fruitgrowers' Association. Mr. J. A. Perry is president. The Producer Fruit Company will also operate in the Rogue River Valley during the coming season.

Wenatchee fruitgrowers, after some deliberation, have so far decided not to affiliate with the North Pacific Fruit Distributors, but will market their crop through the institutions which handled their crops last year, of which there are several, Wenatchee Fruitgrowers' Association, The Wenatchee Produce Company and the Wenatchee Valley Fruitgrowers' Exchange, which will be marketed through the Northwestern Fruit Exchange.

California crop: Eldorado County reports a full crop of pears, but only fifty per cent of last year's peach crop. Prunes and plums a normal yield. Watsonville is reported as having considerable frost damage to apples and the crop is estimated to be considerably less than last year. Butte County will only have about one-half a prune crop. Around Napa there will be a large crop of plums, although peaches are light.

The Milton (Oregon) Fruitgrowers' Union and the Walla Walla (Washington) Valley Association have negotiated a deal disposing of their entire crop of Royal Ann cherries. The cherries will be processed, packed in large barrels and eventually put up in glass bottles as maraschino cherries.

Walla Walla and Dayton, Washington, and Milton and Freewater, Oregon: From various growers and other sources in these districts it is reported the apple crop will be forty to fifty per cent compared with last year's crop.

Rogue River Valley estimate: Estimates in Rogue River Valley on May 30 of this year's crop were 550 cars of apples, 400 cars of pears, other fruit 100 cars.

Mr. Henry Crawford has again been elected manager of the Salem Union, which is composed of a membership of over 400 growers.

Colorado estimates a much smaller yield than last year.

Editor Better Fruit:

I have taken several fruit growers' papers and horticultural magazines and I find "Better Fruit" the best. Of course your location in the far West presents problems different from the far East, but I have gotten from "Better Fruit" many suggestions of utility on a New Hampshire farm. Yours truly, Chris E. Hill, Temple, New Hampshire.

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Choice Varieties—Peculiar Condition of Soil and Climate

F. A. Huntley, Washington State Horticultural Commissioner, at Spokane Conference, 1912

WE have in this state a great variety of conditions. Every locality has its peculiar conditions of soil and climate. In the climatic conditions we have heat in varied amounts. In some localities we have heavy soils, in others light soils. We have irrigation and lands without irrigation. And we have perhaps about as varied a condition as could be found anywhere on earth within the boundaries of this state. It would be very difficult indeed to select or name the varieties suitable for any considerable portion of this large and varied area. We have about fifty varieties of apples in this state entering into the commercial traffic. We should probably have not over twenty varieties. Each locality should perhaps not have over a half dozen varieties of winter apples, and in some localities I am sure the number should be cut down considerably below that, to two or three varieties. The reason so many varieties have been gotten hold of in this country in the first place is through lack of knowledge of varieties and conditions. In the second place, there comes in the element of personal preference. People going into the orchard business have been acquainted with certain varieties, that have appealed to them, appealed to their taste in other localities. They have introduced those varieties without considering their adaptability to the particular sections in which they were interested. In that way we have in the neighborhood of two hundred varieties of apples growing in this state and about, as I said, fifty varieties entering into the commercial traffic of the winter varieties and perhaps ten commercial varieties of the summer variety entering into commercial traffic. It is quite a conglomeration.

Now we propose to sift out and get down to the choice of the very best varieties adapted to each locality. About a year ago the Western Washington Horticultural Association requested me to appoint a committee of five to study varieties suitable for Western Washington and explain and analyze the conditions and the qualities and everything that enters into making an apple a commercial and a domestic variety. The reports of each member of this committee will be submitted to all the other members of the committee for investigation and comment. Right on the heels of that Professor Morris had undertaken a work of similar nature over the state, and we are now co-operating, we hope jointly, my department and the state college, to prepare a list that will be comprehensive and valuable to all apple growers in the state. That report will be out some time during the winter, and I don't know that I should go into very much detail in regard to varieties, but await the outcome of that report. I think it will be valuable because it is going to embody not only the work of the state

college and the inspectors, but some of the leading fruitgrowers of the state as well, and we are going to analyze this thing until we get down to something like a substantial basis. In the irrigated districts, Wenatchee and Yakima and the valley along the Columbia River, we find they have conditions for growing a greater number of varieties to a high state of perfection than you can where they have only special conditions. Under the system of irrigation and the choice of light and heavy soils it is possible to grow more varieties than where you have to depend altogether, or most altogether, upon natural conditions. But in spite of that fact I doubt very much if there are more than half a dozen varieties of apples best suited to any one of these localities at the present time. And another significant fact, practically all our standard varieties of apples are old varieties. We have very few exceptions. We have made very much progress in the matter of varieties, but I look forward to the time when the varieties best suited to every particular locality will be produced or graded in that locality. But that time is quite remote. We cannot expect to reach that very soon, perhaps not in this generation.

In the Wenatchee country and in the Yakima country and sections similar we find that the best commercial varieties are: I will put the Winesap first; then we come along on the heavier soils and we have the yellow Newtown, perhaps second; we have the Spitzenberg and we have the Grimes. The Grimes, to get size, requires a little heavier and richer soil than most localities afford. Now the Winesap cannot be grown throughout the entire state. It can be grown in these warmer sections and grown to perfection, but the Winesap in the Palouse country is not at all adapted from the standpoint of a commercial variety. The varieties best adapted are limited, as I said, in sections like the Palouse country and further south, where you can grow a Wagener whose superior cannot be found in any variety. It is also adapted to Western Washington conditions. To my taste there isn't a better apple grown than the Wagener. The Rome Beauty is a very excellent apple here and is grown with excellent success, but is not grown west of the mountains with the same degree of success,

not enough perhaps to enter it as a commercial variety, that is, to recommend it as a commercial variety.

I am tempted to say something about the extent of the apple industry in this state. I shall not take very much of your time, but as near as I can figure on a general estimate we have as a crop this year seven and a half million boxes of apples, making about eleven thousand carloads in the State of Washington, grown this year. Our inspection service completed last year a tree census. We had approximately ten and a half millions of apple trees in the State of Washington, and that number has not been very much augmented this year. There has not been as much orchard planted; it has just about held its own. The inspectors throughout the state are now working on these figures and some time in January we will get a full report, and that report will be about as reliable as it is possible to make a report of that character.

A great many people are fearful that we are going to have an overproduction. If we were to continue isolated, if we were to continue to suffer inconveniences of long-distance shipments and narrow markets, I think we might well fear this overproduction. But under the present circumstances I do not believe that we should ever fear overproduction in this Northwest. Not all of the lands in this state are adapted to apple growing. I figure that our maximum output of apples will probably reach over twenty millions of boxes eventually. That is a matter we do not need to worry about at present because the supply and the demand is going to regulate the planting of orchards. People are now looking to something else and I do not look for an overproduction. We are also getting into the manufacture of by-products. This year a considerable advance has been gained all over the state in the manufacture of by-product fruit, especially apples, and in the evaporation and canning of apples and other fruits, and in the manufacture of vinegar,

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cider, jellies and jams. I do not apprehend any overproduction. This year, for the first time in the history of this state, have we shipped a considerable number of apples into South American ports. Larger shipments than ever before have gone to Asia and Australia.

Our markets are broadening. This year we had a maximum crop. It is not likely that our average crop in the future, for a number of years to come, will exceed the crop of this year. I look to see it less next year.

Continued in next issue

Bulletin Reviews

A NEW bulletin has recently been published by the University of California, Berkeley, California. It is known as Bulletin No. 231, "Walnut Culture in California and Walnut Blight," by Ralph E. Smith, Clayton O. Smith and Henry J. Ramsay. This is the most complete treatise that has ever been printed on the English walnut, containing in all 399 pages. The bulletin is most excellently illustrated. It opens with a general discussion of the English walnut, but soon takes up a description of other species, such as American black, California black and the hybrid walnuts which abound throughout California. One of the most valuable parts of the bulletin is the history of walnut culture in California. The bulletin as a whole deals with California conditions, but since California produces most of our English walnuts it is through a history of the culture in California that we gather many facts of great interest to us here in the Pacific Northwest. Following the history and development of the walnut culture in California, the bulletin devotes considerable space to such subjects as the location of the orchard, distance of planting, tillage, irrigation, fertilization, pruning and similar topics. One chapter of the bulletin which will greatly interest Northern growers is that entitled "Crop Handling." This is the best writeup we have seen on this subject, going into detail on the picking, washing and packing-house operations, such as sampling, bleaching, grading, selling, etc. Another very strong chapter in the bulletin is that on propagation. Fifty pages are devoted to this subject alone. The various methods of grafting and budding, sprouting, etc., are thoroughly illustrated and carefully explained. A large number of varieties are described. The descriptions are very thorough and complete. Not only is the nut described, including such features as the size, form, surface, color, uniformity, cracking quality, pellicle, meat and flavor, but such characteristics of the tree as the foliage period, type of growth, foliage, harvest season, precocity, production of older trees, susceptibility to blight and other troubles are all treated fully. This phase of the bulletin is a very valuable contribution to a systematic study of our varieties of walnuts. A table is given in the bulletin relating to market values of nuts as based by expert walnut buyers. This takes up the weight, volume, dimensions, number of nuts per pound, per cent of meat and specific gravity. These characteristics of commercial walnuts are thoroughly discussed in the bul-

letin. The bulletin concludes with a discussion of diseases and insects attacking the walnut. This phase of the bulletin will be especially valuable, as it contains a very complete writeup on the walnut blight known as bacteriosis. Other problems, such as die-back, sunburn, crown gall, root knot, wilt, yellows, shriveled meat, and insect troubles, such as aphids, blister mite and red spider, are thoroughly treated. The bulletin was written more especially for Pacific Coast conditions and is evidently the result of careful observations and studies of the authors extending over a period of a number of years.

A second walnut bulletin, which will be of great interest and value to us, has just been issued by the Bureau of Plant Industry, United States Department of Agriculture. It is known as Bulletin No. 254, entitled "The Persian Walnut Industry of the United States," by E. R. Lake. Professor Lake was for years connected with the horticultural and botanical work in Oregon and Washington. This bulletin is printed as the result of very careful observations on the part of Professor Lake. He has treated the subject of walnut growing more from a national point of view than one pertaining to any distinct region. The bulletin is written with the hope of showing readers how it would be possible to extend the area of successful cultivation of the walnut and also to discourage persons from planting trees in localities that are not suited to their culture. For while the consumption and price of walnuts in the United States have greatly increased during the past ten years, the output of the home-grown product has been practically at a standstill in spite of the fact that extensive plantings have been made. The bulletin opens with an introduction which treats largely of the history of the walnut in Europe and Asia. This is followed by a description of the English walnut tree. A few pages are devoted to the use of the walnut for food purposes, for oil, for pickles. Distribution and areas of culture are treated from a world-wide point of view and the range of culture, as far as this country is concerned, is treated state by state. Climatic tables have been prepared which give data of value to those contemplating walnut growing. Various regions, such as California, Oregon, Pennsylvania and New York, are compared with Grenoble, France. Table I will be of great interest to Oregon growers, since in many features Oregon compares with Grenoble very closely; and when it is borne in mind that Grenoble is the greatest

center of walnut production in the world this table becomes specially interesting. In such points as altitude, temperature and precipitation the figures for Oregon and Grenoble are almost identical. The bulletin next takes up the soil requirements and the location and site of walnut plantations. Varieties and types of walnuts are treated very fully. In speaking of propagation, the writer begins with the early authorities on this subject, quoting freely such well-known authorities as Thomas Andrew Knight. Various stocks to use, nursery, tillage, scions, tools used in grafting and methods of grafting and budding are fully treated and illustrated. Some attention is given to a number of diseases and insect pests that attack the walnut. In connection with handling the crop, such subjects as harvesting and curing, hulling and grading, processing, bleaching and storing are fully treated. The subject of walnut growing as a business is given some attention, with the yields one can expect. Tables are reprinted from the 1910 census showing the number of walnut trees found in the various states of the Union. The bulletin closes with a most excellent bibliography. It is nicely illustrated, the plates of varieties in the back of the bulletin being excellent. This bulletin is sold at twenty cents a copy.

The United States Department of Agriculture, Bureau of Chemistry, has recently published Bulletin No. 160, entitled "A Study of Nuts With Special Reference to Microscopic Identification," by W. J. Young. This bulletin, while not being of as much interest to nut growers as the two former mentioned, is of interest to those who are planning to dispose of various fruit pits, such as the almond, peach, prune, etc. Formerly these were mostly thrown away or burned; now they are being used for the manufacture of various by-products. The bulletin goes carefully into the histology and botany of the meats of the various nuts. This will not be of so much interest to walnut growers as the remarks on the use of the various nuts—speaking of almonds, for example—that almonds are blanched by treating shelled almonds with boiling water, rubbing off the skins and thoroughly drying them. Almonds are roasted, salted, sold as burnt and salted almonds; the kernels, either whole or chopped, are used in confectionery, cakes and similar food. Almond paste and almond meal are used in making macaroons and biscuits. A fixed oil is obtained from the kernels by pressure, and in the case of bitter almonds the residue is distilled, yielding the true essential oil of bitter almonds. The cake obtained in the manufacture of the oil is a valuable stock food. The various adulterants of the almond are mentioned. The bulletin speaks of a possible future for the use of the kernels of the prune. It states that experiments in removing the pits from the prunes before drying have recently been made, and should this

process prove a financial success prune pits will eventually take their place beside those of the peach and apricot. This class of by-products was formerly used only for fuel, but recently there has been an increased demand, especially for apricot pits, and investigation reveals the fact that in certain cases the kernels are substituted for bitter almonds. They are often exported to Europe, where the essence is distilled and mixed with or substituted for the oil of bitter almonds. In speaking of walnuts, it states that walnuts are marketed whole or the meats are removed from the shells and sold for use in confections, cake, etc. All the species are rich in oil, which is sometimes extracted by pressure, but which is not much used except in certain parts of Europe. Green walnuts are pickled or used in making walnut catsup. Nearly all varieties of nuts that are used in this country are treated in the bulletin.

Continued in next issue

Fruit Distributors

The North Pacific Fruit Distributors are now organized ready for business and will begin the fruit season by handling the cherry crop, following with other lines of fruit, such as peaches, plums, prunes, apples and pears. The North Pacific Fruit Distributors is an association composed of growers in Washington, Oregon, Idaho and Montana. It is an association owned, controlled and operated by the fruitgrowers who are well known in the business in the four states represented. The trustees for the three-year term are H. F. Davidson, Hood River, Oregon, and Harry Hubler, Walla Walla, Washington; for the two-year term, W. M. Sackett, Corvallis, Montana, and W. N. Yost, Meridian, Idaho; for the one-year term, F. E. Sickles, North Yakima, Washington, and H. C. Sampson, Spokane, Washington. J. H. Robbins, North Yakima, is general manager; H. F. Davidson, Hood River, is president; H. C. Sampson, Spokane, secretary and treasurer, and N. C. Richards, North Yakima, is attorney. The head office will be located in Spokane, Washington. The North Pacific Fruit Distributors is composed of the associations of sub-centrals in the various districts. Practically all of Southern Idaho is formed under one association with fifteen sub-centrals, which is signed up with the North Pacific Fruit Distributors. The Yakima District Association has signed up and is composed of twenty-three sub-centrals, located in the various parts of Yakima Valley. The associations at Milton and Freewater, Oregon, and Walla Walla and Dayton, Washington, have also joined. The fruitgrowers around Spokane are organized and have connected themselves with the North Pacific Fruit Distributors. Hood River is practically united in one central association known as "The Apple Growers' Association of Hood River," and has joined the North Pacific Fruit Distributors. Three trustees remain

to be selected. Arrangements have been practically completed and assurances given that Spokane bankers will finance the North Pacific Fruit Distributors for their temporary needs. It is estimated that the North Pacific Fruit Distributors will handle from 12,000 to 15,000 carloads of fruits, vegetables and melons this year, and possibly may take on the potato crop, which is estimated 4,000 carloads. The trustees and a number of other fruitgrowers prominently identified with different associations, in connection with inspectors and packers, met in Spokane for the purpose of perfecting a set of grading rules, which will be the standard in all districts which ship their crop through the North Pacific Fruit Distributors. This means practically a standardizing of the entire fruit crop that will be handled by the North Pacific Fruit Distributors this year. Three special sales managers of the association have been selected, consisting of Wilmer Sieg, Hood River; B. A. Perham, North Yakima; H. E. Smith, Payette. J. T. Ronan of North Yakima will be manager of the traffic claims department. The trustees, executive officers and all officials, who have positions of responsibility and trust, will be under heavy bonds, varying from \$5,000 to \$100,000.

1913 Prices

Estimates in May and early in June from various sections of the United States indicate that the crop of apples will be considerably smaller this year than last. Estimates in the Northwest also indicate the same condition. Throughout the Northwest and East, during the middle of June, the June drop had not taken place, and therefore it is assumed that the estimates in all probability will have to be revised later in the season. Prices last year were ruinously low on all varieties of apples. The crop was an exceedingly large one in all sections. Apple growers of the Northwest learned the foolishness of shipping off grades and poor varieties to Eastern markets. Practically nearly all such fruit did not pay the harvesting and freight charges. Prices were so low last year that everybody could afford to buy apples. The consumption showed a marked increase. It is generally believed that to a great extent an increased consumption has been created, which will continue to increase if reasonable prices are maintained.

It is assumed that fruitgrowers of the Northwest will have the good sense to discontinue shipping off grades or poor varieties to Eastern markets, and that they will have the good sense to put up a high-class pack and standardize their packs so that all packs will be of uniform grade. It is generally believed that marketing will be done in far more scientific and intelligent manner than ever before. It is believed that the distribution will be better. It is to be hoped that the right kind of advertising will be done and selling campaign made, and it is hoped and be-

lieved that prices and the fruit industry in general will be in far better condition from every point of view during the year 1913 than during the past year.

Prices at North Yakima

Below we publish a sworn statement of the average fruit prices obtained by Richey & Gilbert, North Yakima, Washington, for the last half of 1912, commencing July 15 and ending January 1, 1913:

AVERAGE NET RETURNS F.O.B. SHIPPING POINT ON SOFT FRUITS

Elberta peaches, per box.....	\$0.319
Crawford peaches, per box.....	.340
Various peaches, per box.....	.342
Crabapples, per peach box.....	.420
Grapes, per basket.....	.172
Italian prunes, per crate.....	.607
Tragedy prunes, per crate.....	.712
Hungarian prunes, per crate.....	.524
Various plums and prunes, per crate....	.494
Yakimines, per box.....	1.152
Nectarines, per box.....	.410
Apricots, per box.....	.307
Winter Nelis pears, per box.....	1.061
Easter pears, per box.....	1.251
Bartlett pears, per standard box.....	.989
Bartlett pears, per half box.....	.726
Mixed pears, per standard box.....	.827
Mixed pears, per half box.....	.642

State of Washington, County of Yakima, ss.

W. A. Baker and C. W. Grant, being first duly sworn, on oath depose and say that they have carefully checked the records of shipments of Richey & Gilbert Company from July 15, 1912, to January 1, 1913, and that the average prices received by Richey & Gilbert Company for fruit shipped by them during that period are as shown above.

W. A. BAKER.
C. W. GRANT.

Subscribed and sworn to before me this 2nd day of June, 1913.

J. H. IMMEL,
Notary Public in and for the State of Washington, residing at Toppenish.

AVERAGE NET RETURNS F.O.B. SHIPPING POINT ALL APPLES TO JANUARY 1, 1913

Winesap.....	\$1.262
Spitzenberg.....	1.122
Jonathan.....	.895
Arkansas Black.....	1.522
Stayman Winesap.....	1.050
Rome Beauty.....	.910
Winter Banana.....	1.600
Hubbardston.....	.994
White Winter Pearmain.....	1.071
Red Cheek Pippin.....	.889
Delaware Red.....	.860
Lawver.....	.860
Grimes Golden.....	.941
Ben Davis.....	.627
Missouri Pippin.....	.870
Black Twig.....	.952
Black Ben.....	.935
Gano.....	.935
York Imperial.....	.892
Senator.....	.878
Wagener.....	.782
Yellow Newtown.....	1.212
Baldwin.....	.672
Northern Spy.....	.840
Bellflower.....	1.043
King David.....	1.090
Snow.....	.620
Various.....	.891
C grade, hail marked, all varieties, 4, 4½ and 5-tier.....	.653

State of Washington, County of Yakima, ss.

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Editor Better Fruit:

Your last two publications are sure mighty fine and they hit the nail right on the head. Yours very truly, C. R. Seager, Davis Creek Orchards, Sacramento, California.

If you are growing apples for profit you will be interested in the saving in grading, sizing and packing which is possible with a

CUTLER GRADING AND SIZING MACHINE

*Reduces
the cost
of
every
packing
house
operation*



*Invest
your money
in a
Cutler
machine
ONCE
instead of
unnecessary
labor
each year*

The grading, sizing and packing of the fruit are combined into one continuous operation. Two grades of fruit and ten sizes of each handled at once. One commercial size only is delivered to each bin so that an unskilled packer becomes quickly proficient, no further selection for size being necessary. Floating bins of large capacity prevent overcrowding and make *continuous packing* possible.

It doubles the output of your sorters and increases the packers capacity from 25% to 50%.

Right Now is the time to commence planning for packing house economics for next season. Write today for descriptive circular and prices.

The Hardie Manufacturing Co., 49 North Front Street
Portland, Oregon

Diversity in Horticulture

SPEAKING on diversity in horticulture and pollination of pears and cherries, Professor C. I. Lewis, of the Oregon Agricultural College, addressed the State Horticultural Society at Corvallis on June 4, in part as follows: "The general tendency of most fruit districts on the Pacific Coast has been to specialize, and by specializing they have undoubtedly been able to grow a higher grade of produce than they could otherwise; but specializing in one fruit alone is more or less dangerous. It works well as long as the prices are good and the margin of profit is wide, but whenever the margin of profit becomes narrow and the prices are low the system is not so satisfactory and often works hardships on the men who are not backed overly well financially. The most prosperous fruit districts on the Pacific Coast are really those which are producing a great diversity of crops. This may not mean that each individual orchardist is growing a very wide range of fruits, but that the community as a whole is producing a diversity of products. A community which produces prunes, peaches, cherries, walnuts, apples, pears and berries generally has something to sell every year, and is established on a firmer financial basis than the region which is dependent on one of these fruits alone.

"We hear a great deal about diversified agriculture and diversified farming at present, and, for a certain class of

people and under proper conditions, diversified farming would be a most profitable life to take up. How far a fruit grower can diversify would depend largely upon the soil, climate, and the individual. I want to call your attention, however, to the fact that diversity in agriculture does not mean specializing in three or four lines of agriculture. That is, it is better for a man to choose some specialty and make his other lines largely subordinate to this specialty. If he attempts to make a specialty of three or four lines, as apple growing, poultry raising and dairying, he is very apt to make a fizzle and not be very successful in anything. On the other hand, he can choose a line which he naturally likes the best to specialize in, and grow other fruits or farm crops that do not interfere vitally with his specialty.

"One mistake that the fruit growers as a class have made is that they do not grow enough of what they eat. Every fruit grower should have a good garden; should raise his own vegetables and potatoes; he should keep a flock of chickens to supply the family table, and also to have a surplus to sell; he should keep at least a family cow for milk, cream and butter, and he can very nicely produce his own pork. How much he can diversify more than this is a question that each man must work out largely for himself. With livestock, the two lines which will probably work

better with fruit than anything else are chickens and hogs. Whatever livestock the fruit grower chooses should be first class. If he breeds his horses, breed them to a good stallion, and raise first-class colts. His chickens and pigs and cows should be of the best, and he should join in the idea of community breeding and work hand in hand with the dairyman and animal husbandryman who is striving to build up the livestock industry of Oregon. Then from whatever surplus the fruit grower has to sell he will realize the highest revenue.

**BEAUTIFUL
GARDENS**

Trees, Shrubs, Vines and Plants are the requisites for beautiful gardens. We have just issued our annual catalogue, "Trees, Shrubs, Vines and Plants." It is a 96-page book, full of illustrations. It will point the way to beautify your garden. Send for it today. *Mention this paper.*

**J. B. PILKINGTON
NURSEYMAN**
2 ND. & MAIN STS., PORTLAND, ORE.

J. M. SCHMELTZER, Secretary
HOOD RIVER ABSTRACT COMPANY
HOOD RIVER, OREGON
ABSTRACTS INSURANCE
CONVEYANCING

"The disadvantages of diversifying are that people are apt to overreach themselves. They try to grow too great a variety of crops; there are too many details to attend to, and as a result the quality of the fruit they produce becomes low. Eastern experiments have shown us that where one tries to diversify too much the quality invariably falls down, and probably the standing the West has at the present time over the East is due to the fact that we attend to the details better and produce a higher grade of fruit. There are many orchardists, however, who could grow quite a diversity of fruits, and the work can be so arranged that one kind does not interfere very much with the other. Italian prunes are generally out of the way by the time the apples require much attention; sweet cherries and pie cherries do not interfere with prunes or apples, and berries fit in with nearly all lines of horticulture. They conflict probably more with cherries than with any of the other tree fruits.

"The Willamette Valley is a natural diversified region. Here we can find apples, berries, prunes, cherries, grapes, walnuts, small fruits and garden truck all growing to a high degree of perfection. We have here splendid opportunities for building up a horticulture which will be very sound and which will mean a high annual income. There is practically not a center in the Willamette Valley but what can produce more or less of all of the produce I have enumerated. Salem, Oregon, is a good example of what diversified horticulture is doing, and it is very seldom that there is a complete crop failure in that locality. There is generally something to sell every year, cherries, pears,

FOR SALE

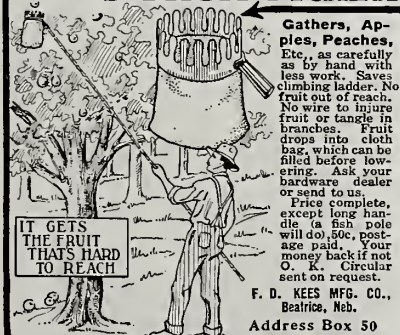
Fifteen-acre full bearing fruit farm. Ten minutes' walk from city high school, fifteen minutes from State College. Address
Owner, Box 325, Pullman, Washington

Nurserymen Attention!

Buds of Cherries, Peaches, Apricots, Prunes, Plums, Pears, Almonds and Apples. Large assortment cut from bearing trees. Send for list of varieties and prices.

R. H. WEBER, The Dalles, Oregon

KEES FRUIT PICKER



Gathers, Apples, Peaches, Etc., as carefully as by hand with less work. Saves climbing ladder. No fruit out of reach. No wire to injure fruit or tangle in branches. Fruit drops into cloth bag, which can be filled before lowering. Ask your hardware dealer or send to us. Price complete, except long handle (a fish pole will do), 50c. postage paid. Your money back if not O. K. Circle sent on request.
F. D. KEES MFG. CO.,
Beatrice, Neb.
Address Box 50

Caterpillar Cultivation Saves the Moisture

The 30 H. P. Holt Baby Caterpillar Tractor is built to meet all the demands of the orchardist.

- It will turn in its own length.
- It can be guided as easily as an automobile.
- It will not pack the soil because its weight is distributed over a large bearing surface.

The HOLT CATERPILLAR

Reg. U.S. Pat. Off.

- Is very light in weight
- It has the pulling power of 16 good horses.
- It is small and built close to the ground—without the canopy it is only 58 inches high. It cannot injure the trees.

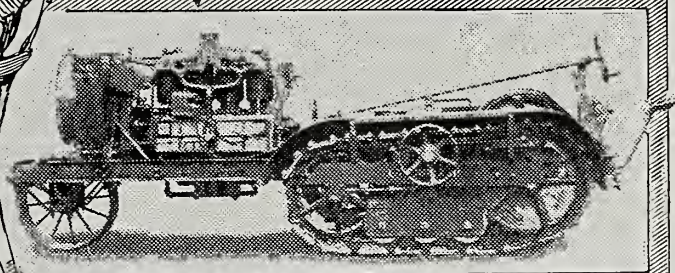
—It burns all the cheaper grades of distillate. Distillate costs less than kerosene.

Fill out coupon and send for our catalogue B.F. today.

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Address _____
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Manufacturing Company
SPOKANE, WASH.

Portland Offices
J. W. HILL, Agent
617 Lumbermens Building
Portland, Oregon



prunes, apples, peaches and small fruits all being grown. Practically every other center in the Willamette Valley has an equal opportunity. The springing up of canneries is going to help us out in our problem, because the canneries and diversified horticulture go hand in hand. The canneries to be successful must run over a long season and must have a range of produce at the same time, if it is to be a financial success.

"If we are to diversify to any extent, however, there is one factor that we must emphasize very strongly, and that is the need of organization. Diversification without organization will never

amount to very much. The man who is selling little dabs of a wide variety of produce is at the mercy of the buyer and has practically to take what he can get, but if hundreds of these men join together they can ship out carloads and trainloads and thus overcome the handicap that they otherwise work under. Corvallis and Eugene are very fortunate in that they are organizing strong fruit growers' associations and are establishing canneries to handle the produce that is being grown. These canneries will mean much to the Willamette Valley. From time to time we hear people say that 'We need more manufacturing plants in this country';

THIS SPACE RESERVED FOR

F. BORDERS SON CO.

THE BOX APPLE HOUSE OF BALTIMORE

U. GRANT BORDER, PRESIDENT

that 'It will never come into its own until we can build up factories.' It seems to me that in the canneries, the creameries and the lumber by-products are contained our real strength, and if we are wise we will build up such industries rather than sit down and wait for the manufacturers of textiles, leather goods, pianos and iron goods to settle in our midst. Our co-operative canneries will bring thousands of dollars into our communities and employ a large corps of people.

"In order to increase the production and consumption of fruits in this valley there are several factors that we must keep in mind. First, we need to study a little better our local markets. We are loading down our local market with too much inferior produce. Apples, pears and vegetables that are only fit for hogs are too often offered for sale. We should strive to encourage our local growers and fruit dealers in this valley to handle a higher grade of produce. Not that the price need to be raised materially for much of the produce that we are selling, but that we should eliminate this undesirable produce, since it works against consumption rather than increases the consumption of fruit. We need to improve very much the conditions of prune growing in this valley. There is a great work of organization among the people who are engaged in prune growing, and we need to try and unify our methods of producing, evaporating and processing. We must establish standards for the prune, and we must take steps to keep people from shipping out of this state large quantities of prunes that will injure the state. There is no question but what large quantities of prunes have gone out of the state which were practically uneatable, and which are now coming back to plague us. In the Italian prune the State of Oregon has one of its finest assets.

"The loganberry is coming to the front very rapidly. We have a great work to do with this berry. If handled properly I have no doubt that the field is almost unlimited for this fruit. It can be canned, evaporated, made into juices, and makes splendid jells. It is a new fruit, so to speak, of great merit; but unless we are careful there is bound to be an oversupply of loganberries.

At the present time most of the fruit is being sold in Chicago and Minneapolis. We should reach out for new markets; we should see that all the cities west of the Mississippi River are first supplied with this berry, and then begin to extend our market to the Atlantic seaboard and to Europe. I am fearful that many of the berries that are being evaporated in this state are going to hurt the loganberry market. Many of the berries are not graded properly, they scorch and burn during drying, some of them are too green, and the product is often very unpalatable. If we supply the market with such a product for a few years we will be sure to have a condition which will be very similar to the early prune situation. However, by organizing and working

together we should build up an industry with the loganberry that will mean ten million dollars yearly to the State of Oregon.

"The establishing of our canneries is going to open up a very promising opportunity in pear culture. The Bartlett pear grows to splendid perfection, yields heavily, and at fair canning prices gives a very satisfactory profit. There will undoubtedly be an increased demand for pie cherries. In the East such cherries as the Montmorency, English Morello and the Kentish or Early Richmond are in great demand. These cherries grow nicely here. In every region where we can grow them we should have an acreage of pie cherries to supply the canneries. In no region of the United States does the

Fruit Labels

OF

QUALITY AND DISTINCTION

They're the only kind we make. If you are looking for the unusual and attractive in handsomely Lithographed Labels let us submit some samples and suggestions.

**NO ORDER TOO SMALL
NO ORDER TOO LARGE**

Schmidt Lithograph Co.

— SAN FRANCISCO — LOS ANGELES —
PORTLAND, SALT LAKE CITY, SEATTLE

Lambert cherry grow better than in Western Oregon. I have recently talked with government officials and they have expressed the opinion that with the opening of the Panama Canal we should be able to put these Lambert cherries on the European markets by precooling and shipping in cold storage steamers. In this way the fruit handles very nicely. The demand for Royal Ann cherries for Maraschino is increasing very rapidly and we have a good industry already established for this fruit.

"In the production of cherries there are very few regions in the world that can equal the Pacific Coast. On our warm sandy and silt loams raspberries yield very heavily. The loganberry is at its best on this soil, but all our well drained clay loams will produce blackberries, loganberries, gooseberries and currants very satisfactorily. The little region around Puyallup, Washington, is reported to be shipping out about five hundred carloads of produce annually, mostly berries. A recent newspaper clipping reads that that region is to ship out this year five hundred barrels of red raspberries packed in sugar. There is seemingly a great future for Western berries. Apples in the Willamette Valley have been largely grown as a side line and as a diversified crop, and in many years they have not proved very satisfactory. This is due in many cases to a lack of proper methods of culture and to the choice of the wrong varieties. The whole valley needs to get together and consider the question of the right varieties and of improved methods of handling the soil. Prices of apples this present year were far from satisfactory, but it does not follow that such conditions will continue indefinitely. The Willamette Valley can produce certain varieties of apples to the finest degree of perfection; there are other varieties that the growers should leave absolutely alone.

"I have been asked to give some information on the pollination of pears. This is a subject which might well occupy all the time allowed for an address. However, there are only a few points in which the grower will be vitally interested at this time. In the first place, many of the pears are sterile, or so nearly so that they do not set fruit satisfactorily without outside pollination. The Comice comes in this class, also the Anjou, and even in some varieties which are naturally self-fertile, like the Bartlett, we find it better if we plant other varieties with it. In other words, at the experiment station we have recommended that no variety of fruit be planted alone, but that it be combined with other varieties blooming at the same time. For pears the early bloomers are the Bartlett, Clairgeau, Howell, d'Anjou and Kieffer. Any two of these will interpollinate. The late blooming pears are the Angouline, Bosc, Comice, Easter Beurre, P. Barry and Winter Nelis. Any two of these will prove satisfactory.

"In planting out your pear orchard plant them in oblong blocks in two to six rows of a variety. This will be much better than attempting to plant

In the Summer is the Time to Prepare for the Fall Business

GET THE "BLUE BOOK"; check up the firms you want to deal with in the fall; send them some preliminary literature, telling them what you are going to have; how you want to deal; get correspondence started so when the shipping season begins you will be having inquiries for quotations. Confine your dealings to reliable firms; put up your stuff according to certain grades—either those used in the "Blue Book" or those that you may publish and include with your literature; lay the foundation for a full and thorough understanding as to not only how you are going to sell, but the grades that you are going to ship, and if possible, arrange with your customers that if any difference arises which you cannot adjust between yourselves that the matter will be left to the Produce Reporter Company.

BY THIS SYSTEM you will be prepared for all emergencies and in this preparation you will, in fact, *avoid* most of the causes for misunderstandings and difficulties. Besides this you will be equipped to immediately look after the unavoidable cases. The last disastrous season has set a great many Growers and Shippers to thinking very seriously of the marketing problem, and no matter what your conclusions may be on this very interesting question, you certainly need credit information and inspecting and adjusting protection that you can only secure through a Membership in this Organization.

IT WOULD PLEASE US to have you ask for full particulars if you do not thoroughly understand our proposition.

Produce Reporter Company

212 West Washington Street, CHICAGO

Are you well represented **IN MILWAUKEE?** If not line up with

ALPHONSE J. CONROY

Broker Distributor **CARLOTS** Fruits Vegetables

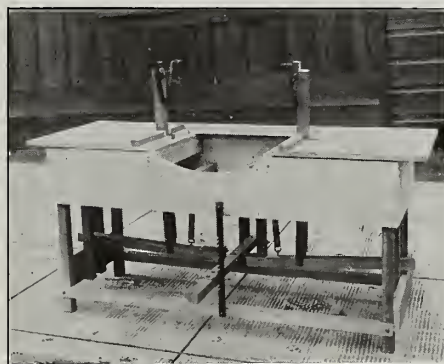


Marketing Agent for Growers' and Shippers' Associations

Reference: Bradstreet's, Dun's

Chamber of Commerce Building

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HOOD RIVER Box Nailing Press

Eliminates All Box Bruises

Seventy-Five per cent of the Fruit Growers in the Famous Hood River Valley have given it a fair trial and have pronounced it the most Economical, Convenient nailing press on the market today.

For particulars and price list write to

W. G. SNOW, Manufacturer
Hood River, Oregon

Will you return this coupon to get a White Motor Car Combined with a White Motor Truck at one price.



Here is something new—
an offer out of the ordinary—

Pleasure and Profit Combined

Investigate it today

The White Company

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E. W. HILL, Manager

B.F.

The White Co.
Portland, Oregon:
Send me FREE information about your Combination car offer.

Name.....

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Raise Eggs— Not Lice—

Lice and chickens don't spell success. Get rid of the lice! Dealers sell Lilly's Lice Killer. If not—

The
Chas. H. Lilly Co.
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YOU CAN EARN \$50.00 PER DAY

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Gearless Improved Standard
Well Drilling Machine.
Drills through any formation.
Five years ahead of any other.
Has record of drilling 130 feet
and driving casing in 9 hours.
Another record where 70 feet was drilled on 2½ gal. distillate
at 9c per gal. One man can operate. Electrically equipped for
running nights. Fishing job. Engine ignition. Catalogue W8.
REIERSON MACHINERY CO., Manfrs. Portland, Ore.

Evaporator Men or Those About to Build!

D. W. SEELY

Specialist on evaporation, ventilation, chimney drafts, roof ventilation, heating and radiation of kiln dryers.

Write for furnace catalogue, and in about one month I will have a catalogue out on evaporation of apples, selling, buying, packing, curing and, in fact, everything you wish to know.

D. W. SEELY, Sodas Point
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Land, irrigation and orchard schemes examined for owners, buyers, bonding companies or advertising agencies—Orchard and land values estimated—Orchard soils examined—Directs orchard development—Land damage claims estimated—All business confidential.
BOISE, IDAHO

A PANORAMIC VIEW

of the
Famous Hood River Valley
showing

13,000 acres of apple orchards, Mt. Hood, Mt. Adams and the Columbia River Gorge.

40 inches long Price \$1.00

SLOCUM'S BOOK AND ART STORE
Hood River, Oregon

the trees alternately. The fruit does not all mature at the same time, and by having at least two rows of a variety it cheapens the cost of spraying, picking, hauling, etc.

"The experiment station has recently conducted a series of investigations on cherries. In the very near future we are going to report on this investigation. The work has been carried on both at the home station at Corvallis and with the fruit growers at The Dalles. The results secured are very gratifying and we hope to be able to issue a bulletin in the very near future that can be put into the hands of all those interested in cherry production. Suffice to say at this time that many of the best varieties are sterile, and to get the best results interplanting must take place.

"In conclusion, I want to emphasize the need of organization for the Willamette Valley. All the various centers, such as Corvallis, Eugene, Salem, Dallas, etc., should have strong fruit growers' organizations, and should have canneries or means for handling other by-products. These different organizations should get together at least once a year and meet at some central point, such as Portland. The State Horticultural Society should be a splendid medium for getting these organizations together where we can discuss the problems that confront us and give each other the benefit of our experience. I am hoping that every organization in the Willamette Valley will become affiliated with the State Horticultural Society and thus reap the benefits of such co-operation.

The Newtown Apple

Mr. W. W. Scott of Yakima has fifty-three trees, now thirty years old, which he has always thought to be the Hubbardston apples. It is reported that Mr. A. V. Steubenrauch, chief inspector in the Department of Horticulture at Washington, states that Mr. Scott's apples are not the Hubbardston, but is a new variety. Inasmuch as the popularity of these apples are evidenced by the splendid prices which he has received, which have varied from \$2.50 to \$1.60 in 1912, Mr. Scott is to be congratulated on having something that is good and new.

Irrigation

Mr. R. E. Trumbell of Wenatchee says that in that district it is advisable to irrigate young trees just when they begin to show green tips of the leaves. Trees that have grown for a year or two should also be irrigated, as he very forcefully puts it, "The business of the young tree is to grow." Mr. Trumbell says that bearing orchards should not be irrigated when in full bloom, as it interferes with the setting of the fruit. He also advises the making of irrigation ditches deep, with wide bottoms.

Editor Better Fruit:

"Better Fruit" is doing a wonderful work. Sincerely yours, O. R. Sterling, Strevell, Idaho.

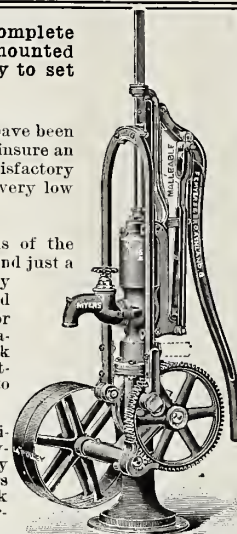
MYERS DEFIANCE WORKING HEAD

A new outfit complete within itself. All mounted on one base ready to set and connect up.

Just the one you have been looking for. It will insure an abundant and satisfactory water supply, with very low installation cost.

Built for the needs of the ordinary consumer, and just a little better than any similar outfit. Fitted for Hand, Windmill or Belt power, with machine cut gears, cock spout, and back outlet: it is adapted to many conditions.

Write us immediately for catalog showing this and many other styles of Myers Pumps, and also ask for name of our nearest dealer.



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120 Orange St., ASHLAND, OHIO
ASHLAND PUMP AND HAY TOOL WORKS

Established at Woodburn in 1863

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qualities
distinguish
Woodburn fruit
trees from other
fruit trees:—Per-
fect health, ab-
solute reliability
moderate price
Grown without
irrigation.

OLDEST,
BEST STOCKED
NURSERY IN
THE WEST.

50 YEARS
CAREFUL, CON-
SCIENTIOUS
SERVICE TO
PLANTERS.

WRITE TODAY
FOR LIST.

THE WOODBURN NURSERIES
WOODBURN, OREGON DRAWER A

Make Your Own Dryers

AND

Evaporate Your Low Grade of Fruit

Estimate of cost Free.

Plans and specifications reasonable.

Address

G. A. STROUT
Sebastopol, California

FOR SALE

Jersey Red, Chester White, Berkshire and Poland China pigs; hunting, sporting, watch and pet dogs; puppies of all varieties a specialty. On receipt of 10 cents we mail highly descriptive illustrated catalogue, which gives full information of 49 breeds of dogs, several breeds of cattle, sheep, swine, rabbits, ferrets; price list of poultry and pigeons.

CHAS. LANDIS

Department 255

Reading, Pennsylvania

Position Wanted!

By an experienced orchardist with executive ability, as foreman. Temperate and not afraid of work. Understand vegetable growing also. References. Address "W," care "Better Fruit."

WANTED HEAD PACKER TO take charge of packing staff for season 1913, commencing August 1st. Must be thoroughly competent in all the most up-to-date methods of packing apples. Apply, stating qualifications and salary required, to

The Salmon Arm Farmers' Exchange, Ltd.
Salmon Arm, B. C., Canada

Wanted

By a good orchard man and general farmer, a position on a large fruit ranch in Hood River Valley or vicinity. Good worker, sober and steady; single and about 35 years old. If man and wife are wanted, my sister can fill the place. Can give best of references. Address "H," care "Better Fruit."

Correspondence Invited

By thoroughly competent horticulturist, college training, six years' experience. Familiar with planting, care, pests, spraying, harvesting and marketing. Good organizer. For the past two years and a half have been in full charge of 4,000-acre orchard, supervising every department. Will be at liberty about September 1. Address "E," care Better Fruit Publishing Company, Hood River, Oregon.

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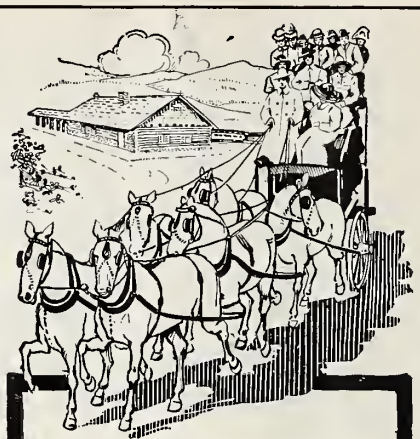
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nothing but apples. Even do I know a great many who have at least amassed considerable wealth producing only apples. At the same time I know that numerous men have made fortunes growing wheat. But most of these are speculators, and for every one that has made good a hundred have scored a total failure. A very large majority of the wheat farmers have only a hand-to-mouth existence, and you who raise only apples have no more chance than he who raises only wheat. A one-crop system of farming is only a gamble. Like roulette, racing or rum, it will get the best of any individual or any community that will stay with it long enough. But this please bear in mind, the most prosperous, happy and contented people in this world of ours are the farmers who grow a diversity of crops. True, there is good money in apples. Some years bumper crops will sell for bumper prices, but there is sure to be years when, in spite of the best of care, and with the best of selling arrangements, you will find it next to impossible to make expenses from your orchard. This will, of course, be disputed by a lot of those who have, so to speak, all their eggs in one basket. They hate to admit that their basket may be weak. They hate to admit that they cannot always get those extra fancy prices for their apples. But they are looking backward, not ahead.

As a whole, the United States has had a great apple shortage for an number of years, and it is going to be a long time before we get back to the per capita production of twenty-five years ago. Yet with the enormous acreage of apples planted and to be planted the growers are about to find themselves in a much different position from that which they have been enjoying for the last few years. Competition is growing stronger and markets are being more plentifully supplied. Shipments are of necessity being made to more distant points, thereby increasing transportation charges. The best associations possible will find themselves unable to continue the exorbitant prices heretofore received. It has become necessary to sell apples at a price that the common people can afford to pay in order to maintain, or what is more important, to increase the consumption. You will say that you must get those high prices, or nearly so, in order to make a fair profit. Yes, that is right. I know all about it. But the trouble is it is costing too much to produce those apples. We must not only strive to lower the cost of marketing but we must also cheapen the production. There are a great many ways that will help toward growing cheaper apples, but I am only going to mention one. I want you all to listen. Many will doubt, some will dispute, but I want to tell you what I know to be true. The longest and surest step toward cheapening the production of apples is to grow them in conjunction with the dairy cow and the hog.



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A. D. CHARLTON, A. G. P. A., PORTLAND

I have no message just now for the owner of the large commercial orchard that is handled only on an investment basis, where those interested do not live upon the land. But for the average grower, they that live by the sweat of the brow, they that make their home upon the farm, they that are striving to live and rear their families in peace, happiness and prosperity, for these, the cream of American citizens, I wish to say, specialize in apples if you will, but whether you have five acres or fifty, my advice is, and always has been, plant not more than half of your land to orchard. Put a portion of the rest into alfalfa and grow enough other feeds, such as corn and root crops, to support as many cows and pigs as you can well handle. Add to these a good flock of chickens and you are always assured of a good living, a steady income the year around, your labor will be most evenly divided throughout the year and you become rather independent of market conditions. With only apples to sell you may find it difficult to move them just when you want to without serious loss. You are not sure just when your returns will be made. At the best the entire sales must be made through the fall and early winter. There is a long period with nothing coming in. On the other hand, with the cows making regular returns every month in the year, a bunch of pork that may be arranged to go off at the time when you will need the money most, you have a business yielding a steady income which is always the most advantageous. A given amount of money, coming in in regular installments weekly or monthly, is bound to do more good than the same amount handed you in a bunch once a year. If the work is properly planned the cow, the hog and the orchard need not conflict to any great extent and you have the great impetus of varied employment, which makes the days shorter, the tasks lighter and the life span longer. And furthermore, where a single-crop system is practiced there is generally nothing returned to the land. It is just drain, drain, drain from one year's end to another, and your land is continuously getting poorer. You must work harder and harder each year endeavoring to keep up to your standard yield. On the other hand, with your cows, pigs and chickens, with the proper handling of manure, you are building up instead of running down your land.

In taking up the dairy business the same general principles apply as when starting an orchard. Do the best you possibly can in every particular. First determine what breed is best suited to your conditions. Select a good dairy breed, of course, and make your choice one that will most likely satisfy your personal inclinations. Get the best stock you can possibly afford to buy. Get cows in which the milk-making habit is firmly fixed, for that habit of making milk out of feed is all you need expect from the cow. And here is a little story to illustrate that point: A

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little boy was making a cigarette. A man asked him for a paper, then for tobacco, and the boy readily accommodated him. When the cigarette was made the man requested a match. As the boy handed it over he remarked, "Say, all you've got is the habit, ain't it?" Like the man, all the cow has is the habit. If you expect her to indulge in that habit you must furnish the "makings," even to the match. The makings are the feed, water and general care. The match to complete the process is represented by the brains of the owner. You must put brains into the dairy business if you would take dollars out.

The hog question is answered much the same as the cow. Procure always the best possible stock and then be sure that you breed up and not down. Handle your pigs in such a way that you will have them ready for market at the most advantageous time, preferably at the season when your other crops are likely to be making their lowest returns. I might go on talking

cows and hogs all day, but I think I've said about enough. In finishing I want to tell you this: The time is coming, and it is not far off either, when you will all be glad enough to listen to this kind of talk and will be ready to combine the cow and the hog with the orchard business. The sooner you come to it the better it will be for you. The sooner a large majority of you come to it the better it will be for the country at large, for the farm is the basis of all business, the keystone of prosperity and the life of the whole world; for the farmer feeds them all. You cannot feed them entirely on fruit. Give them also milk, and meat. Therefore you must come to the grand combination, the cow, the hog and the orchard.

Editor Better Fruit:

Words fail to express my thoughts in thanks and appreciation of the helpful and very beautiful paper, "Better Fruit," that you publish for the small sum of ten cents the copy. It ought to be twenty-five cents. Yours sincerely, Lars Aresvik, Malaga, Washington.



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Cover Crops and Shade Crops

By Professor C. I. Lewis, Oregon Agricultural College, Corvallis

THE average orchardist in the Pacific Northwest practices what is known as the clean tillage system. By this system we mean a spring preparation of the ground, which generally consists of plowing and thorough harrowing, followed by frequent shallow stirrings of the soil during the summer to prevent the soil from baking and cracking and to prevent the growth of weeds. The methods of tillage, the amount that is given, etc., vary with the soil, the variety of fruit, age of trees, etc. It is felt by most growers that this system of orcharding is by far the best; that it is giving results that cannot be secured in any other way. Such tillage is supposed to keep the ground in good physical condition; to increase the water-holding capacity of the soil; to place the soil in such condition that it catches the spring rains and holds them for the growth of the trees during the dry months; that it prevents rapid evaporation and loss of moisture from the surface of the soil; that it promotes nitrification; causes decomposition of organic matter, thus forming humus and setting free nitrogen; in short, that it produces those physical, chemical and biological conditions that are essential for the best tree growth. There is absolutely no doubt that this system of tillage brings the best results for our young orchards, for wherever

the trees are grown in sod or are neglected in any way the succeeding growth under our climatic conditions is not as satisfactory as where intensive tillage is practiced. When the trees, however, become mature and reach the age of from ten to twenty years, we notice that changes have taken place. The soil, instead of being in better tilth

and better condition, is getting lumpy if it is a clay loam, or is becoming exceedingly light if it is a silt loam. The trees no longer have the green, vigorous color that they formerly had—in fact there is a yellow tinge to the foliage and the trees seem to be going into their dormant period by late summer or early fall. It is only with difficulty that we are maintaining the size of our apples. Core rot, winter injury, little leaf, or apple rosette, are begin-

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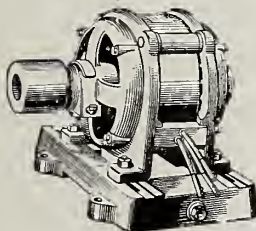
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ning to become very troublesome, in fact the trees are showing signs of suffering. A careful examination will show that the trees are receiving less moisture and less food the older they get; whereas they should require more. What is the trouble? Simply that the constant tillage has burned out the organic matter of the soil, thus depriving it of humus and nitrogen. The physical condition of the soil has become impaired. The remedy, to restore again organic matter. But the orchardist says: "Surely fruit trees do not require very much food. Why, there are apple trees in the East two hundred years old still in vigorous condition." If our readers will but take time to look up a few tables they will find that over a twenty-year period a crop of apples takes out more plant food than

an average crop of wheat in the same length of time. The only reason that the orchard soils do not seem to become depleted as rapidly as grain or farm crop soils is that the trees feed in a greater area. What can we do to restore the soil to its normal condition, to keep the soil in a more uniform condition as regards the heat, the moisture and the plant food? The answer will be, grow cover crops.

By a cover crop we mean a crop which is sown in the summer or fall of the year, is allowed to grow during the winter and is plowed under in the spring. Its benefits? In a word, they are simply to overcome these very defects of tillage. The cover crop will add the organic matter which, in decaying, forms the humus and nitrogen. It will improve the physical condition

of the soil and will restore it to that former condition, which is so desirable.

In growing cover crops there are a number of things to be observed. First, the time of planting. In many cases the growers put the seed in too late. It should be planted the last week in August or in the early part of September, and should, preferably, be drilled in where conditions will allow. It may be that in time we shall get cover crops that we can plant later in the season and still get satisfactory growth. When the seed is drilled in it comes up more uniformly, there is a better stand, and even though the ground seem dry at this season, it is surprising to see how well the seed germinates when drilled in, and with the first fall rains it grows very rapidly. Where one has a little irrigation water it will be found to be of great benefit in assisting the cover crop to get a start.

What are the plants to use? There are three classes. First, there are the nitrogenous plants, which we believe have the power of taking nitrogen from the atmosphere and storing it in nodules on the roots, and when these

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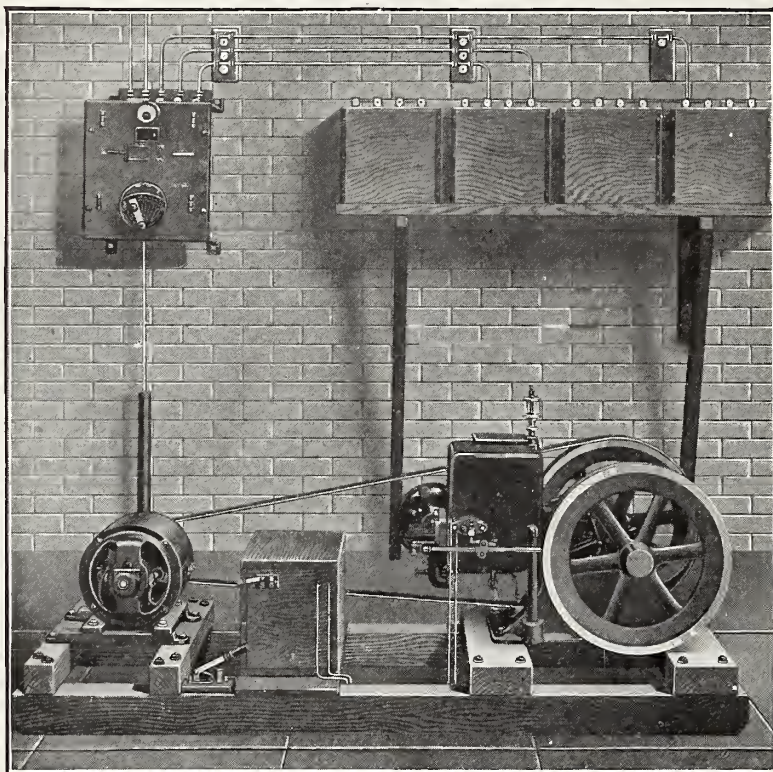
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roots decay this nitrogen is set free so that the trees can obtain it. Nitrogen is the so-called vital element. Without a fair amount of it in the soil it is impossible to get satisfactory growth. It is the substance which produces the vigorous green color of our trees and gives them their vigorous wood and leaf growth, and when used to excess affects the color of the fruit, preventing the red apples from taking on their natural color. The second class of cover crops are those which seem to have the power of working up the raw plant food which is in the soil. They feed strongly on potash and thus make this element more available. These include such crops as the mustard, rape and cowhorn turnips. The third class are of value principally in that they furnish fiber, organic matter, and a certain amount of plant food is made available by their decay. They include such crops as weeds, oats, rye, barley, etc.

The most common nitrogenous crops used here on the Coast are the vetches. In Western and Southern Oregon, where mild winters are experienced, what is commonly known as the Oregon vetch, or *Vicia sativa*, is the more common one used. In regions where dry soil and severe winter conditions prevail the *Vicia vellosa* is preferable. It is a little slower grower in the spring, but when once starting into growth makes a heavier growth than the *sativa*. There are probably many other crops that can be grown to advantage in certain areas, such as Bur clover, Tangia pea, woolly-podded vetch, bitter vetch, etc. The United States Department of Agriculture has been co-operating with various parts of the Northwest in furnishing seeds of some of these crops. Professor Lawrence made elaborate tests in the Hood River Valley, and some of these will be continued the coming year. The experiment stations at Talent, in Southern Oregon, and at Hermiston, in Eastern Oregon, as well as the home station at Corvallis, are carrying on tests concerning the best crops to use under the various conditions.

Concerning the amount of seed to use, forty pounds of vetch and ten pounds of rye make a very good combination. However, many growers are finding that where the hairy vetch is used twenty pounds is ample. Oats twenty pounds, Canada peas one hundred pounds, rape ten pounds, cowhorn turnips two pounds are average amounts that are being used and are giving good results.

In attempting to grow cover crops for the first time the grower often becomes discouraged, for in many older orchards, where the shade is heavy, it is hard to get a good stand. Again, the growth is so small in the spring of the year at plowing time that he is tempted to wait too long, until the crop becomes heavy. In doing this he generally makes a mistake, for if he waits until late in the spring to plow under a heavy cover crop, the chances are that the crop has taken out too much mois-

ture from the ground, and should the succeeding weather be very dry the trees might suffer. Again, there is a great danger in waiting too long before plowing in crops like rye, for you allow them to become high, and then they decay very slowly in the soil, and the first year after they are plowed under they actually do more harm than good in that they assist in drying out the soil. The best rule that I can give is to plow the crop in at the time you naturally plow the orchard, and you will find in subsequent years that a better growth results.

In purchasing seeds locally for cover crops it is not necessary that they be cleaned, the cheap uncleaned seed often being satisfactory, in that the growth of weeds with the cover crop does no harm, but in some cases serves as a good nurse crop.

As to the proper rotation to use, it will depend largely upon conditions. Where trees are showing yellow color and are not making vigorous growth, the nitrogenous crop should be used. Where the trees do not show lack of nitrogen a crop like cowhorn turnips or rape might prove beneficial. But where the trees are making a satisfactory growth, but the ground is in such shape that it is somewhat hard to handle, a crop such as rye or oats may prove very desirable. Rye has one advantage in that it is very hardy and will germinate with a minimum amount of moisture. It will stand more drouth than any other of the plants mentioned in orchard cover crop work.

Do not plant a cover crop in your young orchards unless you feel that it is needed. It costs money; seed is expensive, and there is considerable extra labor in planting, and plowing and working the ground after the cover crop has been grown.

A shade crop is a crop which is grown among the trees during the growing season. The last few years many orchardists throughout the Pacific Northwest, where irrigation can be practiced, have adopted the shade crop. It is felt that it has some distinct advantages over the clean tillage and cover crop combination. First, it shades the ground, cuts down the reflective light, is thought to keep the ground cooler and to keep it in a more uniform condition as regards moisture and temperature. It enables the orchardist to grow some hay for his horses and for the family cow, or, in some cases, it allows him to combine orcharding with certain forms of livestock, like hogs, to advantage. It is adapted principally to irrigated sections and is not used to any extent until the trees come into bearing. Those who have used the shade crops are very enthusiastic, and certainly an inspection of many of our orchards in which the shade crops are grown will satisfy the most skeptical. The trees look vigorous, have good color, and are bearing heavy crops of high class fruit. The crops that are used for shade are alfalfa, clover, such as red, alsike and crimson, and occasionally such crops as peas and vetch,



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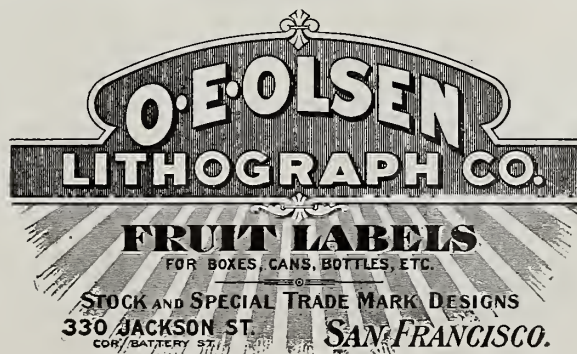
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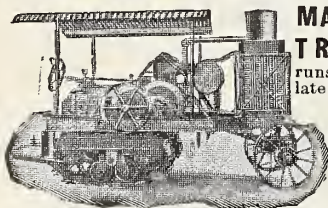
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which are allowed to mat down and reseed themselves. Alfalfa is used in a great many sections and its use is increasing. When once established it makes a splendid shade crop in the orchard, and both alfalfa and trees, in the majority of cases, seem to do well. The only question that arises in my mind is, should it at any time become desirable to change this system of orcharding—that is, if the trees show that they are getting too much of a good thing, so to speak—can we get rid of the alfalfa? And if we can get rid of the alfalfa, can we do it without injuring our trees by either cutting off too many feeding roots, on the one hand, or causing the liberation of too much plant food, on the other? It may be that we shall never need to take the alfalfa out of these orchards, and that if we do we can accomplish it without injuring the trees. However, this is a point which still needs to be experimented with and thoroughly demonstrated. The clovers are being used very extensively in some sections, and they have the distinct advantage in that they can be pulled out very easily.

There are several methods used in handling shade crops. One method is to grow the crops, say for two years, then plow the ground and keep it in clean tillage for at least a year, then reseed to shade crop again. Another system is to cut one crop, which is sometimes put in the barn for horse and cow feed. The second crop is allowed to go to seed. The orchard is disked in very early spring and the new seed gives a splendid growth. This system of reseeded is practiced very commonly with the crimson and red clovers. Another system used is to mow the crop frequently with the mowing machine and allow the crop to decay and mat down on the surface of the ground. Just which system is the best would perhaps take a little time to demonstrate, and it will vary under climatic and soil conditions. Age of orchard, type of tree, etc., may have an influence as to the methods to use.

As to the time of putting in the shade crop, it will depend largely upon local conditions. In some sections seed can be put in nicely in early spring, from March to May. Other regions find that July is a better time to seed. The Oregon Experiment Station has started a set of co-operative experiments in shade crop work and its influence on orchard conditions. To those orchardists who are not satisfied with the general vigor of their trees or the returns in fruit that they are receiving, I would suggest the shade crop, where abundant irrigation can be secured, and the crop that I recommend above all others is the clover. In a few more years we are going to know more definitely about the alfalfa. There are now orchards in the Northwest that have had alfalfa in for six or seven years and the growers are still satisfied with the results. There might be conditions, however, where the alfalfa would not be desirable for this length of time in the orchard.

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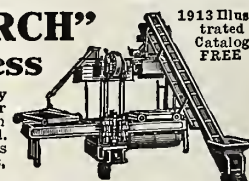
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The Oregon Experiment Station began recommending strongly the use of shade crops in 1908-9, and has been advocating the general use of shade crops and cover crops since, and it is gratifying to see that the orchardists are more and more adopting these methods of improving the general condition of their orchards. If any have had any special experience in the use of shade or cover crops I shall feel very much gratified if they will write to me at Corvallis and give me the benefit of their experience.

For growers who are using the shade crop for the first time a word of caution is necessary; especially is this true if the grower has had little experience with irrigation. In the spring and early summer the ground may become very dry, in fact, too dry, before the orchardist suspects it. If the ground gets dry you are no better off than if you were allowing a rank growth of weeds to grow. Watch your subsoil carefully; get a soil auger and make frequent borings; don't allow the ground to get dry. When you irrigate, water thoroughly; give the ground a good wetting. If you do not look out you will simply moisten the top soil and the subsoil may be as dry as powder. This shallow irrigation will make shallow-rooted trees. If you are using the rill system you may not get enough water close to the trees. Either run your rill close to the tree or else make some basins or short rills at right angles to the main rills, so you can get water to the feeding roots of the trees. Only by using the auger frequently can you be sure that you are keeping the subsoil in good condition. Frequent borings under the branches of the trees will tell you whether the trees are getting enough water.

Horticultural Exhibit

"The liveliest exhibit that has ever been made at any exposition" is the brief description given to the horticultural display in the Panama-Pacific International Exposition by Mr. George A. Dennison, whose appointment as chief of the department of horticulture for the exposition, has just been announced by President Charles C. Moore of the Universal Exposition of 1915. Mr. Dennison has a wide experience in his new field. For many years he was associated with the old California State Board of Trade, an organization devoted to the upbuilding of the agricultural and horticultural interests of the state, where he distinguished himself in valuable services to that organization. He was subsequently secretary of the California commission at the St. Louis Exposition and of the state commission at the Portland and Seattle expositions. At Seattle he was also secretary of the Executive Commissioners' Association. He has also served with great distinction on several international juries on horticulture at previous expositions, and his experience in the exposition world will be invaluable to the Panama-

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Pacific International Exposition. In his present position Mr. Dennison succeeds Mr. George C. Roeding of Fresno, who was compelled to relinquish his duties through the pressure of other business.

In a statement made in the course of an interview, Mr. Dennison has expressed his assurance that the 1915 exhibit will be a record-breaker, as he is assisted by exhibits conducted under the auspices of various floral associations from all over the world that have promised co-operation. "The aim of the department of horticulture," said Mr. Dennison, "is to present the great advancement which has been made in the past few years by every branch of the horticultural industry. From what is known as the great back-to-the-land movement, the creation of fine country estates and the advance of scientific application to horticultural pursuits, there has arisen an insistent demand for orchard products of the highest merit, and also for a more comprehensive application and a more intelligent treatment of ornamental trees and shrubs. The making beautiful of a practical thing is a great influence spreading over the country. Landscape architecture, which will be ably represented by exhibits from the leading architects in America, goes hand in hand with plant origination. Indeed plant origination, a scientific undertaking, has developed into a regular occupation. Where plant breeding was once a mystery, we now have associations and plant-breeding stations all over the country. The product of the workers along this line, meeting a great requirement and giving the world a creation that fulfills the demands of a necessity, I shall endeavor to include in the exhibit. Among the unusual exhibits to be made in the exposition will be the most magnificent display of orchids ever brought together. This will be a complete collection of all the varieties found in the Philippines, and will be made by Mr. F. W. Taylor, director in chief of the Philippine commission. There will be between 400 and 500 varieties, botanically classified especially for the information of the collector, but arranged so that their beauty may be enjoyed by all visitors.

"The exposition has received assurance of co-operation from a number of the most prominent horticulturists in the United States. There will be a comprehensive exhibit of the remarkable results in the improvement of fruit varieties by Mr. Luther Burbank and Mr. Albert Etter and the unique results of Mr. Carl Purdy's domestication of the wild flora. While Holland will be represented in this world's fair with a wonderful display of bulbs, which is promised to outdo any previous exposition display in the world, other equally enthusiastic bulb growers have promised brilliant displays. Some of the world's most famous growers of gladiolis, Bermuda lilies, roses, delphiniums and rhododendrons will be sumptuously represented in the exhibits, and Hawaii has prepared for



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a magnificent collection of over two hundred varieties of hibiscus and tree ferns. These are but a few of the many interesting nursery and floral exhibits already arranged for. There are numerous others, equally as beautiful, promised. Suggestions and promises for support are coming in daily from all over the world. Holland, as I have mentioned, will be well represented, and the efforts now being exercised in other parts of Europe bespeak many wonderful exhibits from France and England particularly. The trophy cup, valued at \$1,000, offered by the exposition to the creator of the finest unnamed rose shown in 1915, has interested rose originators all over the world, and already some of the greatest cultivators in the great rose countries are preparing wonderful contributions. Among the unique exhibits arranged for, in addition to those of general interest, are those showing the olive from its growth, through its processes to the market, and an equipped orange house with, possibly, a practical fruit-canning establishment in operation throughout the period of the exposition."

The Art of Expression

"The development of the individual to its highest and best is the first requisite of any vital religion." It is also the first requisite of any vital education; and, of course, in the true art of expression, which is perhaps more accurately designated by the newer term, "speech arts," is broadly educational in this vital way. By life study and pantomime, observation—all sense perception is quickened, attention is fixed and mental concentration is intensified. By the association of ideas, the memory is strengthened, and by the exercise of discrimination as to proportion and values taste, judgment and the reasoning faculties are cultivated. By freeing and rendering responsive the vocal apparatus, together with the entire physical body, the voice is cultured, poise is gained and health is improved. An acquaintance with the master minds of literature enlarges the vocabulary and widens the thought range, while the corresponding growth of the imagination and of the emotional nature broadens the life vision and the heart sympathies. Finally, the imperative need in interpretative rendition, of self-adjustment and self-control develops inherent capability, personality and will power, which tends toward that aim of all true education—the building of character. Thus it is that a thorough course in the art of expression is not conducive to the spectacular or the merely ornamental, but furnishes practical equipment for the augmenting of success in the social, business and professional worlds. For to overcome diffidence and to acquire ease of bearing, to cultivate the voice out of its unnatural disagreeableness—for which the Americans are noted—into its natural beauty; to form habits of careful valuation, prompt opinion and decisive action,—



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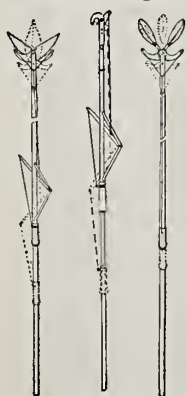
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these are basic elements in the furtherance of culture and attainment.—Emma Wilson Gillespie, principal Gillespie School of Expression, Portland, Oregon.

Birds and the Fruitgrower

State Game Warden of Oregon Mr. Wm. M. Finley is endeavoring to secure the Bob-white quail for liberating in Oregon. All Oregonians will remember the China pheasant, which was introduced into Oregon by Judge Denny a few years ago and liberated under the restriction that they were not to be killed for a number of years. These birds multiplied very rapidly and increased in immense numbers throughout the Willamette Valley. After a few years they became sufficient in numbers so that hunters, during the season, were allowed to kill a certain number of birds per day. By restricting the number of birds that could be killed per day by each hunter extinction was prevented. Birds not only add to the attractiveness of the country but are of great value to the fruitgrower inasmuch as they are great destroyers of worms and many of the pests and insects which attack their fruit. Game birds, in addition to this, add a value to a community where they are sufficiently abundant, affording elegant sport for hunters, and many game birds like the China pheasant and quail are a most savory dish for the table. The China pheasant multiplies very rapidly and is one of the most beautiful birds in the world, and where not hunted too vigorously become very tame. A flock of these birds make their home on the editor's ranch and no one is allowed to kill a single one. They are certainly a beautiful sight. The quail thrives in California, Eastern Oregon and Southern Oregon, and it is to be hoped that further efforts will be made to introduce the China pheasant and the Bob-white quail throughout the Northwest in general so that every fruit-growing section in Washington, Oregon and Idaho will be plentifully supplied with these birds. The California quail and the Bob-white quail are not only insect eaters but weed eaters as well.

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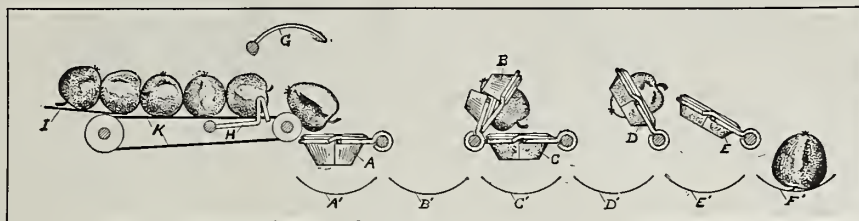
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OGDEN, UTAH

Showing Proper Drying Facilities for Prunes

[Written for "Better Fruit"]

GROWERS, driers and packers of dried fruits should constantly bear in mind the fact that they are not necessities of life like flour and meat, which must be had at any cost, no matter what it may be, but they are semi-luxuries, and if there is going to be a dependable market for them it must be based on excellence of quality and reliability in keeping. The most reliable of cured fruits and those bringing the highest prices to the growers are the prunes cured in France. These are entirely of the sweet varieties as distinguished from the Italian or so-called Oregon prune, which is semi-acid in character, and until the two years previous to 1912 sold at a relatively lower prices than the sweet prune. In 1910-11 the two kinds sold on a parity, but in 1912 the sweet prune took the lead in price again.

We will speak of the curing of the ordinary or so-called stewing prune in France first. The industry there is not conducted at all as we do it. There are very few orchards of any size, but simply a few trees on little farms, all the land between them being enriched and cultivated in other crops. When right the fruit is gathered, washed, put in wicker trays and placed in a spent oven at a low temperature, 110-120°, which is sealed up and no circulation allowed. After eight to ten hours it is taken out and allowed to get cold, when the oven is heated to a higher temperature, about 140-150°, and the fruit returned, the oven being again sealed up. In eight to ten hours the fruit is taken out and cooled as before. The oven reheated, the fruit replaced, and a slow fire kept going, while a rapid circulation of hot air is allowed to carry off the moisture from the evaporation, and when finished they are sold to the packers. The large ones, by some process that I am unacquainted with, are converted into a soft, pliable dessert prune which are shipped in hermetically sealed glass jars and bring a very high price and are

strictly a luxury. The medium and smaller sizes are put into perfectly air-tight receptacles, then placed in retorts and heated with steam to make them uniform in appearance, after which they are put on the market, properly packed. The process of dry-

ing as practiced by the growers develops in them a sub-acid flavor and colors the skin and meat black, and yet it is never scorched, and if properly packed will keep in any climate or under any condition. Some years ago the writer bought from a merchant in Philadelphia a couple of pounds of imported French prunes. He told me he paid twelve and one-half cents a pound for them delivered, which would be almost ten cents per pound to the packer in France. I spread some of them on a shelf in a book case in a room that was kept warm in the winter and exposed in the summer, no flies or worms got into them, and for at least fifteen or eighteen months they retained their lustre, preserved their flavor and never did sugar only in the slightest degree.

It was, I think, Mr. Lake, who made a prune and hop survey of European countries for the Department of Agriculture, who said that the growers got an average of about five cents per pound for their product. I think as we cure our prunes, these 65-70 prunes that I got in Philadelphia would have graded probably ten points higher, viz., 55-60. The growers get very high prices for their larger grades that are converted into dessert prunes. I have gone particularly into their process of



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drying and packing prunes to emphasize the necessity of the application of a high degree of heat at finishing to attain the best results, as is done by the French packers, and that, too, without a possible danger of scorching the fruit. In another way we can largely do the same thing in our dryers here as we will prepare to do it. The essential point is having a large volume of highly-heated air passing rapidly over the fruit. You can use a temperature over 200° Fahrenheit on Italians if you will keep the hot air moving rapidly. I know what I am writing about, for I have done it every year. Another point is the construction of the dryer, that is as to whether you will have the fruit in the early stages of evaporating process when the temperature is low, as it should be in moist warm air or dry warm air. I think that there is no question but that the tunnel form of dryer is the most economical to operate, as under a given condition of the fruit and atmosphere the product will be obtained at the lowest possible cost. No one who has studied the subject will for a moment question the statement that the fruit in the early stages of evaporation should be kept at a temperature below 140° so as not to destroy the ferment diastase which converts starch into sugar, and by that means develops the entire possibility into the saccharine matter which the fruit contains. There is still another question. The fruit in the early stages of drying in a tunnel dryer is of necessity in moist warm air. There is just as good results obtained as if it were dry warm air. Rain at the ripening time of the fruit, and even a fog, prevents the proper formation of sugar. Of course the sugar is mainly produced while the fruit is ripening on the tree.

The next question to be answered is how much evaporated fruit should 100 pounds of fresh fruit produce, and this to some extent depends on the season and the variety that you raise. To produce good keeping fruit with Italian prunes, my observation has been in an ordinary year from 28 to 30 pounds is enough, doing a good job of drying. There is not as much sugar in them at any time as in the French under like soil and climatic conditions. These can usually make about 33 pounds and be properly cured, while under exceptional circumstances I have seen them make five and six pounds more, but not as an average. I was talking to a man once who was bragging of his large percentage of dried Italian prunes and told him I was afraid they were not sufficiently cured. His reply was that the packers would take them and they would go. The fact that packers will take them doesn't make the proceeding correct, and while the grower and evaporator may reap a temporary small advantage by such methods he is injuring not only himself but the prune industry of the whole country.

Now the object in preparing prunes for the market is not only to evaporate



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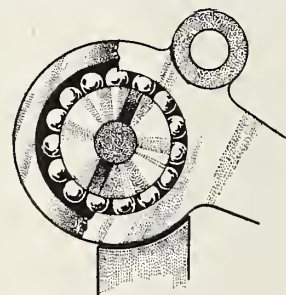
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the water content but also to develop any possible sugar that has not been produced while the fruit is on the tree. Referring to the remark of the grocer in Portland that I alluded to in my first communication, that the packers, after getting the fruit from the dryers, injected steam into them to make them look pretty and add weight and grade, and that the last of his fruit soured before he could dispose of it, it looks to me unreasonable that such a process should be employed, especially when finishing an Italian prune at the high temperature, as they will after the lapse of a week or ten days in bins produce the same results. I always try to take the fruit from the trays while it is warm, and when it gets cold it is hard, but in a few days in the bins all that hardness disappears except in the very small sizes. Dried fruit is hygro-metric and will absorb all the moisture it should have. In this article I am writing with special reference to Italian prunes.

A Troublesome "Alien"

The State College of Washington is now receiving numerous letters from persons seeking information as to how the "Canada thistle" may be destroyed. Upon this subject Dr. Ira D. Cardiff, head of the botany department, issues the following letter: "The name 'Canada' as applied to this thistle is very misleading. The plant is not native to North America at all, but was introduced from Europe, and like some other aliens, when it gets possession of our agricultural lands causes us trouble. The plant is propagated both by seeds, which are very numerous and easily distributed by the wind, and by underground root stocks, which have numerous shoots, both leafy and flowering. I would suggest that the weedy land be plowed deep during the summer before the plants seed; in fact just about the time the flowers open. (It would perhaps facilitate the work to first mow the plants.) Then, by repeated cultivation with broad-sheared cultivators for several years, the plants can be kept down. It has been found in some parts of the country that the best method of cropping to get rid of the Canada thistle is a three-year rotation of crops, one of which should be red clover. The farmers cannot give too much attention to the question of the eradication of this and other noxious weeds which annually cause untold losses to the country. Weeds are increasing, both in number and variety, at an enormous rate."

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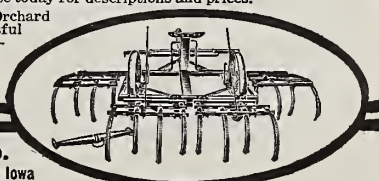
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Northwest Fruit Growers' Unions and Associations

We publish free in this column the name of any fruit growers' organization. Secretaries are requested to furnish particulars for publication.

Oregon

Albany Fruit Growers' Union, Albany.
Ashland Fruit and Produce Association, Ashland.
Benton County Fruit Growers' Association, Corvallis.
Brownsville Fruit and Produce Association, Brownsville.
Butte Falls Fruit Growers' Association, Freewater.
Coos Bay Fruit Growers' Association, Marshfield.
Coville Valley Fruit Growers' Union, Myrtle Point.
Cove Fruit Growers' Association, Cove.
Dallas Fruit Growers' Association, Dallas.
Douglas County Fruit Growers' Association, Roseburg.
Dufur Valley Fruit Growers' Union, Dufur.
Dundee Fruit Growers' Association, Dundee.
Dundee Co-operative Fruit Growers and Packers, Dundee.
Estacada Fruit Growers' Association, Estacada.
Eugene Fruit Growers' Association, Eugene.
Hood River Apple Growers' Union, Hood River.
Hyland Fruit Growers of Yamhill County, Sheridan.
Imbler Fruit Growers' Union, Imbler.
La Grande Fruit Association, La Grande.
Lincoln County Fruit Growers' Union, Toledo.
McMinnville Fruit Growers' Association, McMinnville.
Milton Fruit Growers' Union, Milton.
Mosier Fruit Growers' Association, Mosier.
Mount Hood Fruit Growers' Association, Sandy.
Newburg Apple Growers' Association, Newburg.
Northwestern Fruit Exchange, 418 Spalding Bldg., Portland.
Northeast Gaston Farmers' Association, Forest Grove.
Oregon City Fruit and Produce Association, Oregon City.
Riddle Fruit Growers' Association, Riddle.
Rogue River Fruit and Produce Association, Medford.
Salem Fruit Union, Salem.
Santiam Fruit Growers' Association, Lebanon.
Siuslaw Fruit Growers' Association, Florence.
Springbrook Fruit Growers' Union, Springbrook.
Stanfield Fruit Growers' Association, Stanfield.
Sutherlin Fruit Growers' Association, Sutherlin.
The Dalles Fruit Growers' Union, The Dalles.
Umpqua Valley Fruit Growers' Association, Roseburg.
Washington County Fruit Growers' Association, Hillsboro.
Willamette Valley Prune Association, Salem.
Yankton Fruit Growers' Association, Yankton.

Washington

Apple Growers' Union of White Salmon, Underwood.
Bay Island Fruit Growers' Association, Tacoma.
Brewster Fruit Growers' Union, Brewster.
Buckley Fruit Growers' Association, Buckley.
Cashmere Fruit Growers' Union, Cashmere.
Clarkston Fruit Growers' Association, Clarkston.
Cowlitz Fruit and Produce Association, Kelso.
Dryden Fruit Growers' Union, Dryden.
Elma Fruit and Produce Association, Elma.
Felida Prune Growers' Association, Vancouver.
Garfield Fruit Growers' Union, Garfield.
Goldendale Fruit and Produce Association, Goldendale.
Grandview Fruit Growers' Association, Grandview.
Granger Fruit Growers' Association, Granger.
Kalama Fruit Growers' Association, Kalama.
Kennewick Fruit Growers' Association, Kennewick.
Kiona Fruit Growers' Union, Kiona.
Lake Chelan Fruit Growers' Association, Chelan.
Lewis County Fruit Growers' Association, Centralia.
Lewistown Fruit Growers' Union, Woodland.
Mason County Fruit Growers' Association, Shelton.
Mount Vernon Fruit Growers' Association, Mount Vernon.
Northwestern Fruit Exchange, 510 Chamber of Commerce Building, Spokane.
Peshastin Fruit Growers' Association, Peshastin.
Pullman Fruit Growers' Association, Pullman.
Puyallup and Sumner Fruit Growers' Association, Puyallup.

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Spokane County Horticultural Society, Spokane.
Spokane District Fruit Growers' Association, Spokane.
Spokane Inland Fruit Growers' Association, Kellogg.
Spokane Valley Fruit Growers' Association, Odis Orchards.
Spokane Valley Fruit Growers' Union, Spokane.
Southwest Washington Fruit Growers' Association, Chehalis.
Stevens County Fruit Growers' Union, Myers Falls.
The Green Bluffs Fruit Growers' Association, Mead.
The Ridgefield Fruit Growers' Association, Ridgefield.
The Touchet Valley Fruit and Produce Union, Dayton.
Thurston County Fruit Growers' Union, Tumwater.
Vashon Fruit Union, Vashon.
Walla Walla Fruit and Vegetable Union, Walla Walla.
Wenatchee District Fruit Growers' Union, Wenatchee.
Wenatchee Valley Fruit Growers' Association, Wenatchee.
White River Valley Fruit and Berry Growers' Assn., Kent.
White Salmon Fruit Growers' Union, White Salmon.
Yakima Valley Fruit Growers' Association, North Yakima.
Yakima Valley Fruit and Produce Growers' Assn., Granger.
Yakima County Horticultural Union, North Yakima.
Zillah Fruit Growers' Association, Toppenish.

Idaho

Boise Valley Fruit Growers' Association, Boise.
Caldwell Fruit Growers' Association, Caldwell.
Counell Valley Fruit Growers' Association, Council.
Emmett Fruit Growers' Association, Emmett.
Fruit Growers' Association, Moscow.
Lewiston Orchards Association, Lewiston.
Lewiston Orchards Association, Lewiston.
Nampa Fruit Growers' Association, Nampa.
New Plymouth Fruit Growers' Association, New Plymouth.
Parma-Roswell Fruit Growers' Association, Parma.
Payette Valley Apple Growers' Union, Payette.
Twin Falls Fruit Growers' Association, Twin Falls.
Weiser Fruit and Produce Growers' Association, Weiser.
Weiser River Fruit Growers' Association, Weiser.

Colorado

Boulder County Fruit Growers' Association, Boulder.
Capital Hill Melon Growers' Association, Rocky Ford.
Crawford Fruit Growers' Association, Crawford.
Delta County Fruit Growers' Association, Delta.
Denver Fruit and Vegetable Association, Denver.
Fair Mount Melon Growers' Association, Swink.
Fowler Melon Growers' Association, Fowler.
Fremont County Fruit Growers' Association, Canon City.
Granada Melon Growers' Association, Granada.
Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction.
Kouns Party Cantaloupe Growers' Association, Rocky Ford.
Lamar Melon Growers' Association, Lamar.
Longmont Produce Exchange, Longmont.
Loveland Fruit Growers' Association, Loveland.
Manzanola Fruit Association, Manzanola.
Manzanola Orchard Association, Manzanola.
Montrose Fruit and Produce Association, Montrose.
Newdale Melon Growers' Association, Swink.
Palisade Fruit Growers' Association, Palisade.
Paonia Fruit Exchange, Paonia.
Pent County Melon Growers' Association, Las Animas.
Produce Association, Debeque.
Rifle Fruit and Produce Association, Rifle.
Roaring Fork Potato Growers' Association, Carbondale.
Rocky Ford Melon Growers' Association, Rocky Ford.
San Juan Fruit and Produce Growers' Assn., Durango.
The Producers' Association, Debeque.
Western Slope Fruit Growers' Association, Palisade.

Montana

Bitter Root Fruit Growers' Association, Hamilton.
Missoula Fruit and Produce Association, Missoula.
Woodside Fruit Growers' Association, Woodside.

Utah

Bear River Valley Fruit Growers' Assn., Bear River City.
Brigham City Fruit Growers' Association, Brigham City.
Cache Valley Fruit Growers' Association, Wellsville.
Centerville Fruit Growers' Association, Centerville.
Excelsior Fruit and Produce Association, Clearfield (post-office Layton R. F. D.).
Farmers and Fruit Growers' Forwarding Assn., Centerville.
Green River Fruit Growers' Association, Green River.
Ogden Fruit Growers' Association, Ogden.
Springville Fruit Growers' Association, Springville.
Utah County Fruit and Produce Association, Provo.
Willard Fruit Growers' Association, Willard.

California

California Farmers' Union, Fresno.
California Fruit Exchange, Sacramento.
Fresno Fruit Growers' Company, Fresno.
Lincoln Fruit Growers' Association, Lincoln.
Lodi Fruit Growers' Union, Lodi.
Loomis Fruit Growers' Association, Loomis.
Newcastle Fruit Growers' Association, Newcastle.
Penryn Fruit Growers' Association, Penryn.
Sebastopol Apple Growers' Union, Sebastopol.
Sebastopol Berry Growers' Union, Sebastopol.
Stanislaus Farmers' Union, Modesto.
The Supply Company of the California Fruit Growers' Association, Los Angeles.
Turlock Fruit Growers' Association, Turlock.
Vacaville Fruit Growers' Association, Vacaville.
Winters Fruit Growers' Association, Winters.

New Mexico

San Juan Fruit and Produce Association, Farmington.

British Columbia

Armstrong Fruit Growers' Association, Armstrong.
Boswell-Kootenay Lake Union, Boswell.
British Columbia Fruit Growers' Association, Victoria.
Creston Fruit and Produce Exchange, Creston.
Grand Forks Fruit Growers' Association, Grand Forks.
Hammond Fruit Association, Ltd., Hammond.
Hatzic Fruit Growers' Association, Hatzic.
Kaslo Horticultural Association, Kaslo.
Kelowna Farmers' Exchange, Ltd., Kelowna.
Kootenay Fruit Growers' Union, Ltd., Nelson.
Mission Fruit Growers' Association, Mission.
Okanagan Fruit Union, Ltd., Vernon.
Queens Bay Fruit Growers' Association, Queens Bay.
Salmon Arm Farmers' Exchange, Salmon Arm.
Summerland Fruit Growers' Association, Summerland.
Victoria Fruit Growers' Exchange, Victoria.
Western Fruit Growers' Association, Mission.

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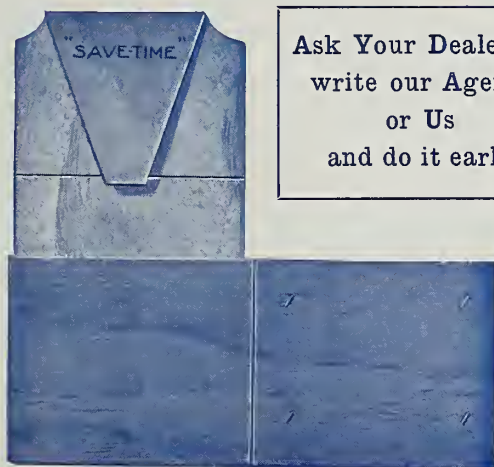
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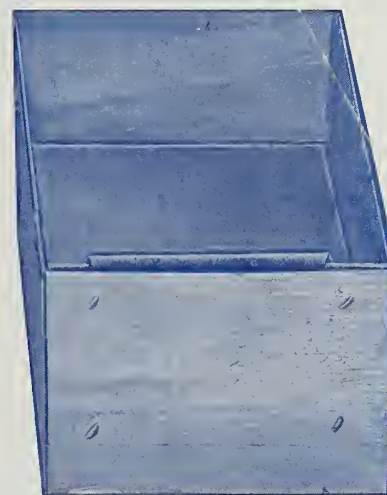


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